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PROGNOSIS AND THERAPEUTIC PRINCIPLE*

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It has sometimes occurred to me to wonder with what criticism a man of scientifically judicial mind would head his list if called upon to scrutinize and report upon the daily work of doctors. Perhaps we may safely assume that our method or lack of method in therapeutics would at least receive prominent censure. Even after allowances are made for the difficulties under which we work, the rushed and frequently exhausting conditions of our lives, and the complexity and variability of our human material, we must confess that modern therapeutics in practice are still sadly lacking in system; that many of us are curiously uncritical and susceptible to the blandishments of the proprietary chemist; that we are pessimistic sometimes, but as hopeful often about the new remedy or operation as the untutored laity, and as slow almost to distinguish between "post" and "propter" in assessing the results of treatment.

Vogues in treatment come and go, introduced without experimental justification, and accepted without the application of any crucial test, without comparisons between a treated and an untreated series, without inquiries into mode of action or even a display of curiosity as to whether the remedy includes an active principle at all. Sometimes, even, harmful treatments flourish for a time. The others exhibit a waning curve of popularity, and early exalted claims suffer a gradual extinction with little attendant commentary or reflection on the time and money wasted and the disappointed hopes. We should be very shy of meeting members of other scientific professions, but, in point of fact, in matters therapeutic, and particularly when they themselves are the patients, even eminent scientists are sometimes as gullible as we are.

Is it some survival of the old association of ideas between medicine and magic that allows this state of affairs to continue? Many patients would still seem to believe (and we are not, as a rule, at pains to correct them) that we have hidden powers of healing, and that our medicines, vaccines, rays, and operations, and our psychiatric jargon are expressions of a magical wisdom which recent science has only served to exalt or modify. Actually, of course, we are concerned with highly complicated physical, chemical, and psychological adjustments, and our powers, though ever extending, are still strictly limited. The *vis medicatrix naturae* does, and will always do, far more for our patients than we can.

These self-criticisms notwithstanding there is no real cause for despondency. Through physiology and pathology and clinical observation our understanding of the *vis medicatrix* continually enlarges, and we become better able to condition the lives and actions of our patients and to apply mechanics, remove diseased parts, and prescribe drugs and regimen to their advantage. From time to time a great discovery, based usually on experiment, gives us a new advantage. The benefits conferred by Pasteur and Lister are immeasurable. Rickets and scurvy, small-pox, typhoid, and diphtheria, even syphilis and tuberculosis, are preventable and coming under our therapeutic control. Acute abdominal diseases and many chronic surgical conditions are far less dangerous and disabling than they were. Surgery and radium have in some degree lessened the menace of cancer. Myxoedema, pernicious and other severe anaemias, and diabetes can be efficiently countered. Malaria and amoebic dysentery have their answers. Psychology is beginning to make a more genuine and useful contribution to healing. Anaesthesia has developed out of recognition. The relief of pain and of many other symptoms is becoming rationalized even when cure is still impossible.

"Credulities and Empiricisms"

What a pity that, in parallel with these advances, we should have to record credulities and empiricisms and follies in therapeutic fashion by the score.

In the last quarter of a century we have witnessed the therapeutic vaccine craze based, not on experiment and the vast experience of war-time as in the case of Wright's prophylactic antityphoid vaccine, but on haphazard speculation and ill-considered enterprise. Organisms isolated from the throat, dental sockets, stools, and elsewhere, and hailed as the cause of the rheumatism, the catarrh, the colitis (and sometimes of the undiagnosed anaemia, cancer, tuberculosis, or gout) have been injected in various combination in their millions of millions—the prescription being at last discontinued when it failed or the patient, after months or years, got better in spite of it. The polypharmacy of the Middle Ages was no more absurd. "Endocrines," "rays," exploitations of surgical procedure, injections of chemical substances vaunted to cure influenza and pneumonia, intravenous chemotherapy for septicaemia, have all been allowed to have their day. In each case it has been the same story. The treatment has been launched with no adequate preliminary experiment, without controls, without clinical trials, and employed without criticism and often, alas, without an adequate diagnosis and to the exclusion of a rational conservative therapy, which, although not miraculous in its effects, at least has the virtue of encouraging or not delaying natural recovery.

Most treatments of the kind I am criticizing are aimed at chronic diseases of variable duration and commonly with a tendency to remission or slow natural recovery. As Gull said: "Medicines do more good when there is a tendency to recovery without them." The remissions

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and recoveries give the upholders of the treatment their opportunities to "claim results." They are never true students of disease. But unless we study disease and its natural variations, how can we ever accept that variations occurring during a treatment are due to it? Other debatable treatments are concerned with acute and alarming illnesses. Here anxiety and a disinclination to dispense with anything which "might do good" provide the common impulse to the employment of the remedy. I have frequently mentioned my indebtedness to the writings of Sir William Gull, who, at a time when various cures for rheumatic fever were being boomed in the profession, made (in collaboration with Dr. Sutton) the simple experiment of treating a number of cases with mint-water in order to prove to himself and others what was the course of the disease uninfluenced by other factors than rest in bed and nursing. He thereby demonstrated to the profession that the new remedies were incapable of shortening the disease or of modifying its pathology. That is a simple form of experimental control which might well be applied in other diseases as a preliminary to reports upon the new "specific."

To-day I propose to select for particular discussion certain treatments which may be allowed to come within my sphere of criticism either because of the manner in which they have been launched and the credulity with which they have been accepted, or because they have already been employed for a long time without adequate justification or proofs of efficacy, or because I see a danger of their becoming accepted as general rather than occasional therapeutic measures. In each case, it seems to me, there has been acceptance without due criticism or proper clinical trial or without a fair determination of scope. In each case the chief criticism of the method is to be found in a simple study of the prognosis of the disease or a fuller understanding of what Sydenham would have called its "natural history."

I shall consider in turn: (1) a recent treatment of peptic ulcer by the injection of histidine; (2) a recent suggestion that surgical intervention for bleeding peptic ulcers should be extended; (3) the employment of serum in streptococcal septicaemia; (4) the employment of type sera in pneumonia; and (5) the use of certain much "boomed" subcutaneous remedies for pneumonia, influenza, and other febrile diseases. Some of these treatments have had their origin in genuine scientific endeavour and in animal experiment, or have derived from wide clinical experience and the growth of technical skill. Others have had no such initiation. In the case of (2) and (4) I would make it clear in advance that I fully appreciate that there are certain circumstances in which the treatments are justified. I am apprehensive only lest their advocacy should be too generally and thoughtlessly or too rapidly approved.

The Histidine Treatment of Peptic Ulcer

A year or so ago, on the basis of animal experiments[1] in which ulcers produced by gastro-intestinal anastomoses were said to be benefited by injections of amino-acids, and especially of histidine, this treatment was advocated and widely adopted, both in this country and abroad. It was indicated at an early stage that the treatment could be carried out without strict dietary or strict rest, a concession which was naturally very acceptable to ulcer-dyspeptics. Soon letters appeared in the journals from doctors who considered that they had had success with the new method, and reports were published on series treated at hospital with more or less inadequate controls in respect of the criteria of healing, and of the time allowed to elapse after the treatment, and with no parallel untreated series for comparison. The stage of criticism and disappointment is now arriving, but not before there has been a great expenditure of time and money on the treatment and some ulcers have perforated or bled during or soon after its employment.

What should our grounds for initial scepticism have been in this instance, and what criteria of effectiveness should we have demanded? In the first place, even conceding that certain not very convincing animal experiments with recent artificial ulcers could be allowed to persuade us of the justification for a clinical trial with chronic naturally occurring ulcers in man, it seems highly improbable that injections of minute quantities of an amino-acid subcutaneously could promptly influence the activity of a chronic gastric or duodenal lesion, a type of lesion notoriously slow in its response to physiological rest, whether supplied by medical or surgical measures. Secondly, to claim that this physiological rest, which has some degree of proved efficacy, could be dispensed with should at once have suggested ignorance or opportunism on the part of the advertisers of the treatment.

When we come to the therapeutic trials themselves, as reported, our knowledge of the prognosis or natural history of peptic ulcer at once compels dissent. Symptomatically peptic ulcer is a disease well known for its natural fluctuations. In the case of duodenal ulcer particularly it has long been recognized that any small change of circumstance, such as rest in bed or going on a holiday, will cause the symptoms immediately to disappear; that even in the absence of treatment it is usual for the symptoms to remit after two to four weeks, and commonly for weeks or months at a time; that disappearance of symptoms may occur in the presence of a large crater; that some ulcer-craters disappear very readily and in response to varying treatments; that radiological and clinical criteria of healing are themselves not infallible; that cases must be carefully followed for many months or even years (not for a few weeks or a few months) and then reinvestigated before sound healing can be surmised; that apparent recovery after a treatment does not necessarily mean recovery because of treatment; and that recovery in cases in which histidine, diet, and alkalis were simultaneously prescribed proves nothing in favour of histidine.

In none of the commendatory letters or papers which I have seen has there been a sufficient appreciation of the very strict observances necessary before a genuine claim on behalf of histidine can be submitted. The writers have had no conception of the conditions of an experiment. I have seen a number of cases in hospital and private practice in which, on clinical and radiological evidence, histidine treatment seemed to me to have been worthless. I have seen none in which I was convinced that periods of improvement attributed to it were due to it. But I am not allowing myself to be unduly biased by this experience. Histidine may have some beneficial effect, but no one has yet proved it by experiments which satisfy me, and in the meantime a large number of patients have been deprived of treatments whose benefits are widely accepted on the basis of old-standing experience and close observation, while a few have suffered perforation or haemorrhage that might have been avoided. Should not we and our patients demand a better method of assaying the value of a new remedy than this very unscientific, "hit or miss" performance? A small committee to investigate and report on the substance itself, its pharmacological and biological properties, and the experiments upon which its production was based, and then (if a therapeutic trial seemed justifiable) a series of fifty or more cases studied by competent observers in a group of hospitals would soon provide the answer to our question.

This answer might or might not please the manufacturer, but it would at least satisfy our critical sense and do service to therapeutics and justice to our patients. A reinvestigation of histidine with animal experiments by Barry and Florey[2] has now thrown doubt upon the original animal work upon which the treatment was based.

The Treatment of Bleeding Peptic Ulcer by Immediate Surgery

In the *Lancet* of October 19th, 1935, Mr. Gordon-Taylor,[3] for whose surgical skill and resource I have the greatest admiration, advocated a more extended trial of surgical measures in cases of severe bleeding from a gastric or duodenal ulcer, basing his advocacy first on the gravity of the complication itself, and secondly on the improvement in the prospects of operation due to such accessory measures as continuous drip transfusion. In his own words: "'Finsterer's first forty-eight hours' is still the optimum period for surgical attack in haematemesis, and the golden age of gastric surgery will have been attained only when all cases of haemorrhage from chronic ulcer come to operation within that space of time." He quoted mortality figures for severe haemorrhage ranging from 2.5 to 12.7 per cent. Other writers give even higher figures, up to and above 20 per cent.

That there should be such divergences in itself suggests that we are too uncertain about prognosis to justify embarking upon a new treatment involving considerable risk. There is no settled statement at present as to what should be understood by "severe haemorrhage." Clearly the more we segregate the "very severe" from the "rather severe," the higher the mortality becomes. The larger figures might well seem to justify a consideration of alternative methods to those in common use for the treatment of gastric haemorrhage, but they were so much in excess of ordinary experience that they prompted Dr. Hurst and me to make independent inquiries into private and hospital figures. Dr. Hurst also circularized a number of general practitioners of large experience, and the common verdict was that gastric haemorrhages, however alarming, have a low mortality. The accompanying Table I indicates the widely varying mortality figures that have been quoted.

TABLE I.—*Mortality Rates of Haemorrhage from Ulcer given by Various Authors*

Author	Place	No. of Cases	Death Rate per cent.
Aitken	London Hospital	255	11
Bulmer	Birmingham	578	10.7
Burger and Hartfall	Guy's Hospital	137	22
Chiesman	St. Thomas's Hospital	191	25
Conybeare	Guy's Hospital	600	2.5
Crohn	Mount Sinai Hospital, New York	101	4.2
Cullinan and Price	St. Bart's Hospital	105	18.1
Davies and Nevin	St. Thomas's Hospital	391	21
Eggleston	Michigan	95	1
Gordon-Taylor ...	Middlesex Hospital	Not stated	21
Hellier	Leeds	202	13
Hinton	Bellevue Hospital, New York	52	20
Lynch	Canada	31	12.9
Meulengracht ...	Copenhagen	251	1
Paterson	London	Over 100	4
Ross	Australia	187	6.5

(From Babey and Hurst, *Guy's Hospital Reports*, 1936, lxxxvi, 129)

Here are my own private figures. My "severe" cases were definitely described as such in the notes, or the patients were in bed for a period of weeks, or were recorded as having haemoglobin figures of 50 per cent. or less.

TABLE II.—*Mortality from Uncomplicated Haemorrhage Expressed in Relation to: (a) Total Cases of Ulcer; (b) Total Cases of Ulcer with Haemorrhage; (c) Total Cases of Ulcer with Severe Haemorrhage*

	Per cent.
(a) Mortality from uncomplicated haemorrhage in ulcer (754 cases)	0.5
(b) Mortality from uncomplicated haemorrhage in cases of ulcer with haemorrhage (258 cases)	1.6
(c) Mortality from uncomplicated haemorrhage in cases of ulcer with severe haemorrhage (128 cases)	3.1

(Private series)

Babey and Hurst[4] at Guy's Hospital, in another recent series of cases of peptic ulcer admitted for haemorrhage, found a mortality from haemorrhage of 4.8 per cent. A combined general practice series (525 cases) gave a mortality of 1.5 per cent. Meulengracht,[5] employing a much more liberal diet in the early stages, claims a mortality of only 1 per cent. in 256 cases of severe bleeding. Christiansen[6] in Denmark, in an inquiry into "massive haemorrhage in peptic ulcer," found a mortality of 7.9 per cent., but remarks that the case mortality has almost doubled since blood transfusion became a frequent addition to treatment.

Now Finsterer,[7] whom Gordon-Taylor rightly acclaims as the modern master of gastric surgery, remarkable though his successes are, and employing such refinements of technique as are not yet at the command of the generality of surgeons, has shown in a series of fifty-nine cases a mortality of 5 per cent. with immediate operation—that is, within forty-eight hours. In other words, taking the great risk which an operation in a case of gastric haemorrhage must always involve, and employing his own wonderful technique, he still cannot improve upon these medical figures obtained from three sources of practice and based on an analysis of a much more extensive series.

But that is not all. A full study of natural prognosis requires a consideration of the influence of sex, age, length of history, the previous state of the patient, and such factors. Gastric haemorrhage from an ulcer in young adults is so rarely fatal that it is just to ask whether surgery should ever be employed in the first three decades, however severe the bleeding. In the older group, although the natural prognosis is worse, the risks of surgery must also be the more carefully weighed, because the risk of intervention is greater. Hospital patients, for economic reasons and because they have been moved to hospital, are apt to be in poorer condition than private patients treated in their homes. Of my four cases of death from uncomplicated haemorrhage—that is, uncomplicated by old age or illnesses which would have precluded operation—the ages of the patients were 55, 50, 36, and 26. All gave long histories of dyspepsia, and the two younger patients both gave histories suggesting the presence of a chronic penetrating ulcer. Deaths are usually due to erosion of a large vessel by a very chronic and often adherent ulcer—the hardest type to deal with surgically even in a patient who is not shocked and exsanguinated.

Briefly the present situation is this. The discrepancies between mortality figures from various sources are so great as to suggest incomparable methods of analysis or treatment in the different groups. A more careful study of prognosis is clearly necessary. Taking the lower estimates of many experienced observers, the mortality from bleeding peptic ulcer treated medically by conservative methods is found to be not greater than 5 per

cent. Surgery in the most skilled hands has not effected a lower mortality. With very great skill and modern improvements lives can be saved by surgery, but the mere fact that they can be saved by an alternative method does not in itself justify the general adoption of that method. Surgery may save a few lives which medicine would have failed to save, but, equally, surgery may lose a few lives which medical treatment would have saved. An extension of surgical treatment as recently advocated, and its wide adoption by surgeons of varying grades of efficiency, will, almost without question, increase the mortality.

Although I am prepared to accept that I may yet have reason to modify my views and to counsel surgery in particular circumstances, reflections of this kind and a recent review of prognosis in hospital, general, and consulting practice seem to me to call for a continued support of conservative treatment in gastric haemorrhage from chronic ulcers.

Finally, we have yet to decide whether transfusion has improved or damaged the prospects of recovery in medically treated cases. We have yet to understand more intimately the factors endangering life, for, in addition to anaemia, dehydration and, in some cases, alkalosis with uraemia, are known to be contributory.

Serum in Streptococcal Septicaemia

For more than a quarter of a century it has been customary to employ anti-streptococcal serum, given subcutaneously, intravenously, or intramuscularly, in cases of streptococcal septicaemia. Many isolated cases and small series have been recorded in which recovery has followed and sometimes been attributed to the treatment, and yet the general anxiety which the disease promotes has never been appreciably influenced by the treatment. Few individuals, perhaps, see enough cases to allow a settled opinion in regard to the efficacy of serum, and as it is generally given (if for no stronger reason) for fear of omitting something which might have a beneficial effect, comparisons between a treated and an untreated series are rarely possible. In a given case we have no certainty that the available sera are specific for the particular infecting organism. It is improbable that most sera are anti-bacterial, although some of them—notably scarlatinal serum—have an antitoxic action. Serum may not only fail to do good; it may do actual harm by causing anaphylactic symptoms. Even in very grave cases recovery can undoubtedly occur without it. If it were possessed of any outstanding potency we should, after a quarter of a century, have welcomed and approved it more unanimously, as we have welcomed and approved the antitoxic sera employed in diphtheria and tetanus.

Why have streptococcal and pneumococcal antisera been so much less dramatic in their influence than the antitoxic sera for diphtheria and tetanus? In the first place the latter are employed to counteract an intoxication and not a septicaemia—a very different proposition. Secondly, with both of these antitoxic sera the attack is launched when the intoxication is still local and before it has spread to distant tissues, or if it is not launched early—that is to say, within a few days—the treatment is ineffective. In the case of a septicaemia the disease is usually active and generalized before the indication for the serum arises, so that even if the remedy possessed an anti-bacterial or antitoxic potency it comes into play unduly late. But let us leave these theoretical considerations and consider some results of serum treatment.

In 1931 Dr. R. E. Smith and I[8] contributed to a symposium in the *Guy's Hospital Reports* a joint paper on "The Natural History, Prognosis, and Treatment of Streptococcal Fever." My own observations were based on experience chiefly obtained in private practice. Dr. R. E. Smith examined the reports of cases of streptococcal septicaemia admitted to Guy's Hospital over a period of ten years. A careful study of the case histories and temperature charts gave us no conviction that serum, often given in very large doses, ever contributed towards the recovery. Subsidences of pyrexia rarely appeared to follow directly after the treatment. A fall in temperature following drainage of abscesses or a natural subsidence after the serum treatment has been discontinued for some time are apt to be claimed by the uncritical as effects of the serum. I can recall one case only in which the patient, a medical man, was convinced, while I myself remained sceptical, that the serum made a sudden difference and helped his recovery from a general septicaemia. In this case I employed a mixture of various brands of sera, hoping for specificity in one of them. More recently Colebrook,[9] writing on puerperal septicaemia (*Streptococcus haemolyticus*), has concluded that there is no evidence that these sera are of any value, and that they may do harm. The mortality was higher in the treated than in the untreated control series analysed by him. It cannot, however, be concluded that the serum was the cause of the higher mortality in the treated series.

TABLE III.—*Death Rate of the Serum-treated Cases and of the Cases which had no Serum*

	Cases	Deaths	Case Mortality (per cent.)
All cases treated with serum before admission	69	21	30.4
All cases which had no serum	932	108	11.6
Haemolytic streptococcus cases:			
Treated with serum	40	18	45.0
Treated without serum...	346	70	22.3

(From Colebrook, *Lancet*, 1935, i, 10, 85)

Serum treatments are expensive, their administration may be very disturbing to very ill patients, and they are capable of causing immediate and remote anaphylactic symptoms which only add to misery. Until the laboratory worker and the clinician, working in collaboration and imposing upon themselves the strictest rules of observation and control, investigate and report further upon these problems, we are, I believe, entitled to withhold treatments so slenderly supported by common observation and by comparative prognosis in treated and untreated groups of cases.

Type Serum in Pneumonia

I come now to a more difficult judgement. Very careful work in the United States and in this country, based upon competent animal experiment and hospital studies, has demonstrated a reduction of mortality in lobar pneumonia due to infection with pneumococcus Types I and II. Cecil[10] in America, in 422 untreated cases (all types), found a mortality of nearly 36 per cent. In 429 cases (all types) treated with serum the mortality was 28 per cent. The best results are obtained in Type I cases, some observers claiming a reduction of mortality by almost half when treatment is instituted within the first seventy-two hours. Type I infection accounts for approximately one-third of all cases. The mortality figures for pneumonia in the United States are higher than in England. Waterfield,[11] at Guy's Hospital, over a nine-year period, found a total mortality of 16 per cent. between the ages of 13 and 75 years. One-third of the deaths occurred above the age of 50. There were no deaths between the ages of 15 and 20.

Making the following allowances: that above infancy the mortality of lobar pneumonia in children is probably too low to justify drastic treatments of this kind; that after 50 the mortality is doubtfully influenced by serum; that the natural recovery rate taking all ages in this country is approximately 80 per cent.; that serum should probably not be given unless it be of appropriate type; that typing may take from twenty-four to forty-eight hours; that serum after the third day is of steadily diminishing value; that the diagnosis is often not possible until the second or third day; that serum must be given once or twice daily and intravenously; that serum reactions, in spite of improvements in the sera, still occur; and, finally, that minimal interference has long been accepted policy in this disease—where does our duty lie in connexion with this accessory treatment?

Pneumonia is one of the acute diseases in which a patient may seem to be desperately ill and yet make a complete recovery. How are we to judge whether serum may be necessary to tip the balance in his favour, or, when we employ it, that it has been the cause of a recovery? Serum treatment is clearly more suited to hospital than to private practice, owing to the demands which it imposes in the matter of investigation, close nursing, and watchfulness, and of the time and preparation expended on intravenous medication. The mortality is already lower, in all probability, in private practice than in hospital practice, and home treatment under good conditions is therefore, in ordinary circumstances, to be preferred to transportation for hospital treatment.

Knowing what we do of prognosis and the moderate contribution which serum has been shown to make, I would suggest, pending further studies, that serum treatment should be reserved for patients between the ages of 20 and 50 who appear to be gravely ill in the early stages, or are alcoholic, or whose blood shows no leucocytosis, who give no allergic history, and for whom a typing can be secured within the first seventy-two hours. Where the choice lies between good conditions and good nursing at home without serum and movement to hospital for serum treatment I should generally prefer the former, but judgement, as always, must be reserved for the individual case. It is a very hard decision to withhold a treatment which might just make the difference in the contest between infection and immunity, and so save a life. If serum could produce results like antitoxin in diphtheria or insulin in diabetes we should have no hesitation in advocating its extended use, but the judgement is, as I have sought to show, a much more difficult one, and in each case our general knowledge of prognosis and individual and local circumstances must be allowed to exert its proper influence.

Some Other Treatments

I have thus far chosen to discuss methods which have been widely advocated or used and which have had some scientific backing, but in regard to which it seemed desirable that we should pause and take stock. These methods must, I suspect, have set many conscientious men thinking. There are others in use which I have not yet discussed and which are so patently unsupported by reason or inquiry or results that one wonders how they retain their popularity at all.

I have frequently been asked in recent years, when called to consult over a case of pneumonia, septicaemia, "influenza," bacterial endocarditis, or other obscure continued fever, what my opinion was of substances which I will call X or Y, and which have been advocated by proprietary firms, and, more rarely, by medical men writing to professional journals, as capable of influencing humoral pathologies and expediting cure. Their vogue is now, I fancy, declining. I have usually prophesied that it would do so, just as the use of vaccines and the application of ultra-violet rays for every kind of debility have suffered a gradual loss of favour. Why should I have been sceptical? The reasons are easy to state. First, the treatments were launched without preliminary trials; their boons, just like those of any quack remedy in the advertisement pages of the Sunday papers, were proclaimed in advance. Secondly, the claims for these substances were not, so far as I could learn, based upon any animal experiment. Thirdly, their pharmacological or biological actions, whether in animals or men, did not appear to be known, if, indeed, they had any such action. Fourthly, although they were clearly being used quite extensively in practice, in the teaching hospitals they had no vogue. Finally, when I examined charts and cases in which these remedies had been used before my advent I could not discover that anything had been achieved by them. Sometimes their employment had even seemed to stultify inquiry and postpone diagnosis. I remember a laudatory paper in a journal in which a doctor reported upon cases of "influenza" treated with one of these remedies. In the majority of his cases the fever terminated within three days. He quite overlooked the fact that that was the approximate course of the disease in the particular epidemic.

What are the reasons, apart from the subtle virus of advertisement, which impel doctors to employ such doubtful and unproved remedies? They may do so in an anxious or troublesome case with a forlorn hope that this time "it may do good." They may do so from a vague urge "to do something active" when at the end of their resources, and for some reason a hypodermic injection has come to be regarded as a more positive action than the prescription of a potion or a poultice. They even do so—and this has not infrequently, I believe, been the case with vaccines and with histidine—"because the patients demanded it."

But surely these are all motives unworthy of our art. Not only are they unworthy in themselves, but I would suggest that each time they lead to action they are liable to be accompanied by omission of rational symptomatic measures of importance to the patient. There is no case, however obstinate or grave, in which there is nothing left to be done. Sleep and rest must be secured; anxiety on the part of patient and relatives must be comforted or allayed; nurse and relative must be given instructions and "kept busy" in all such emergencies as haematemesis, streptococcal septicaemia, and pneumonia. For the patient posture, the administration of morphine or oxygen, the fluid intake and how it should be maintained and by what routes, the blood count or culture, and many intimate details of nursing must all be catered for. Close clinical scrutiny must continue with the mind as far as possible detached from its anxiety. Meanwhile the *vis medicatrix* is being assisted and the doctor is busy enough, without unwarranted or speculative interference, to satisfy patient and relative, who will be the first to appreciate the form and intent of his industry. Referring to the details of symptomatic treatment employed by him in rheumatic fever, Gull[12] remarked that "it required often more consideration than was requisite for prescribing any supposed appropriate drug treatment." The same could be equally well said of careful routine treatment in ulcer cases, gastric haemorrhage, septicaemia, and lobar pneumonia.

Accepted Treatments

Let us now contrast the study of new remedies which have been unanimously acclaimed. Banting's discovery of insulin was based upon careful experimental methods, its action confirmed in animals with experimental diabetes

and then upon patients with the natural disease treated under proper conditions in respect of control and observation. Only then was it presented to the profession. Within a few months its benefits were everywhere apparent. It had "come to stay" in every country in the world. It satisfied alike the credulous and the sceptical.

Minot's demonstration of the value of liver therapy in pernicious anaemia was partly dependent on earlier animal experiments by Whipple with artificial anaemias and then on careful clinical trials checked at every stage. Its refinements have depended equally on close clinical observation and intimate haematological study. As a consequence an intensive study of the blood diseases has followed and the value of massive iron therapy in microcytic anaemia has also been proved. As with insulin, so with these treatments acceptance was inevitable; the treatments were studied eagerly and employed actively but critically in the teaching hospitals from the first, and rapidly revolutionized practice throughout the world. In each case prognosis was at once and subsequently improved.

The experimental method of originating new therapeutic measures does not preclude the occasional empirical discovery like quinine and digitalis and prostigmin, but even such discoveries require and have received, sooner or later, what may be called "adequate clinical trial" or scientific assay, or both. The Therapeutic Trials Committee of the Medical Research Council does valuable work in arranging for proper trials of any new remedies which the manufacturing chemists are prepared to submit to it, but we are daily confronted with the advertisements of treatments launched as a commercial speculation and with no such scrutiny. I believe that our profession would gain nothing but respect and increased allegiance from the public if it were to insist on more frequent and judicial inquiries into all therapeutic innovations.

My remarks are not uttered in a censorious spirit, nor are they intended to apply to any one section of our fraternity. They are the expression of a mental discontent which I believe we all share in some degree. I put them forward alike for the consideration of the general practitioner, the consultant, the clinical and laboratory specialist, and the manufacturing chemist.

In addressing your old and honoured Pathological Society I may appear to have wandered too far afield and to have touched upon matters of conduct in practice which might, at first thought, be held to be remote from pathology. But, in fact, all I have asked for is a better appreciation of all that pathology, using the word in its broadest sense, implies. Only by the study of disease and its natural origins, processes, and progress can we learn how to influence its prognosis for the better, whether by active intervention or refraining therefrom. In the next stage of medical evolution the actions and uses of remedies, in common with other biological phenomena, must be determined not by advertisement or opinion, but by observation and experiment.

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SOME METHODS OF ANALGESIA DURING LABOUR*

BY

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Relief of pain during the second stage of labour has now become a fairly well-accepted practice, though even now, I regret to say, there are still some practitioners who consider the use of analgesics unnecessary for the normal case. Relief at this stage is usually obtained by the administration of an inhalation anaesthetic given intermittently with the pains, so that an analgesic effect is obtained. This method has much to recommend it, for the co-operation of the patient is retained and she is able to make voluntary efforts and so hasten delivery.

Inhalation Anaesthesia

Of the inhalation anaesthetics, chloroform and gas in combination with either air or oxygen are the most commonly used. Each has its adherents, and circumstance usually decides which is used. It is obvious that chloroform is often the only possible anaesthetic for use in domiciliary practice, more especially in country districts. Its cheapness, portability, and ease of administration account for its popularity.

The use of gas and air and gas and oxygen is steadily increasing, and rightly so, for wherever possible it should be chosen as the least toxic of the anaesthetics. In hospitals or nursing homes where portability is not a consideration gas and oxygen or gas and air is most certainly the anaesthetic of choice, and Dr. Minnitt has done a great service by the introduction of his ingenious gas-and-air machine, which is now making it possible to use gas much more widely in domiciliary practice. Though I consider gas and oxygen and gas and air to be of the greatest value throughout the second stage of labour, I am not fully convinced that either of these alone is, in many cases, really sufficient for the actual delivery. The addition of a small amount of ether or chloroform for the crowning of the head adds very much to the ease and comfort of delivery, both to patient and to obstetrician.

Relief from pain in the second stage does not really present a very difficult problem now where adequate assistance and instruments are to hand. I wish, at this time, to draw particular attention to the relief of pain during the latter part of the first stage of labour. This is often described by the patient as being the most wearisome and painful part of her whole labour. The cervix is dilating, often very slowly, and the patient can do nothing to help herself as she can in the second stage by her voluntary efforts. The form of relief which we should give her at this time differs essentially from that given for the second stage, in that an intermittent form of relief, such as is obtained by inhalation anaesthetics, is, to my mind, inadvisable.

It should be borne in mind that if an inhalation anaesthetic has been begun it must be continued until the time of delivery. It is obviously unwise to use chloroform in this way, for its toxic effects are most often seen in those cases which have received it over a long period, even in very small doses. Gas and air, or gas and oxygen, is sometimes used before full dilatation, but I do not approve of its prolonged use in the first stage, for the intermittent form of relief is often inadequate and very tiring to the patient. Though she may get relief with each pain, she

* Read in opening a discussion at a meeting of the combined Sections of Pharmacology and Therapeutics, with Anaesthetics, and Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Oxford, 1936.

lies in apprehension waiting for the next contraction, and may thus become very much exhausted. Some form of drug which will give her a real rest and continuous ease from the pain should be administered at this stage.

Sedative Drugs

No drug gives such adequate relief from pain as morphine, and an injection of 1/6 or 1/4 grain at this stage will frequently be sufficient to tide the patient over the latter part of the first stage until the cervix is fully dilated, permitting an inhalation anaesthetic to be begun. Obstetricians who avoid the use of morphine lest delivery should occur within two hours of its administration generally use other drugs such as scopolamine or one of the barbiturates, usually nembutal or sodium soneryl. The use of such drugs in the first stage greatly facilitates the administration of gas during the second stage.

For the straightforward case very satisfactory results are obtained by the use of sedatives such as potassium bromide and chloral hydrate, or one of the barbiturates, in the earlier stages followed by morphine, scopolamine, or the barbiturates again later on, an inhalation anaesthetic being given during the second stage. There are, however, a number of cases which for one reason or another have a long, wearisome first stage. This may be due to such complications as persistent posterior positions, slight disproportion, rigidity of the cervix, etc. I wish to draw special attention to the analgesic measures useful in such cases of a prolonged first stage.

We have, at the Royal Free Hospital, for the last three years been using rectal methods of analgesia for these cases. The rectal anaesthetics which may be employed for obstetric purposes are avertin, paraldehyde, and ether. We have used only the two latter in our series, and the accompanying tables show the results obtained in fifty cases which have received rectal ether and fifteen which have received paraldehyde. These are unselected cases taken from our records of approximately 130 administrations of rectal ether and 40 administrations of paraldehyde. The numbers are small because rectal methods are mainly reserved for those cases in which the usual analgesics are inadequate.

Rectal Ether

The numbers given rectal ether are greater than those given paraldehyde, as the choice has been left to the resident anaesthetists in charge. The results obtained from the rectal ether have been, in their opinion, very much more satisfactory than from paraldehyde. We have had a certain amount of restlessness with the paraldehyde cases after injection, and also the smell of the drug is not popular in a general ward. The patient herself does not appear to notice either smell or taste.

ROUTINE FOR RECTAL ETHER

In the early stages drugs such as potassium bromide, 30 grains, chloral hydrate, 30 grains, in 6 oz. of glucose lemonade are given, mainly for their sedative effect. When the pains increase in strength and frequency and the patient becomes distressed 1 c.cm. opoidine in 2 c.cm. magnesium sulphate is given intramuscularly in the gluteal region. In twenty to thirty minutes, if real relief is not obtained and the patient is still distressed, the rectal injection is given; this may be delayed for one to one and a half hours after the morphine has been given, but the best results are obtained when it is given about half an hour after the morphine. The time to start the routine of the rectal method is best decided by the severity of the pains rather than by any degree of dilatation of the cervix. The obstetrician may not wish to examine vaginally, and in any case dilatation occurs at such differing rates in differing patients that it is not really a reliable guide. The important point to note is that the pains should be really well established, or even the administration of morphine alone may delay the progress of labour.

PREPARATION AND ADMINISTRATION

The rectal ether is prepared according to the formula of Gwathmey, and consists of:

Quinine alkaloid	gr. xx
Alcohol	♏ xl
Ether...	ʒ ijss
Olive oil	to ʒ iv

An ordinary funnel and catheter, size 10–12, are used for the administration, an enema having been given some time previously to clear out the lower bowel. The anal region is well greased with vaseline, the funnel is filled with an ounce or so of warmed olive oil, and the attached catheter is inserted six to eight inches into the rectum. The warmed mixture is then poured in and a further ounce of olive oil is given, making about 6 oz. in all to be retained. The injection usually takes about ten minutes and should not be done hurriedly, as the patient may become excited if it is run in too rapidly. If a pain occurs during the instillation the catheter should be nipped and the patient instructed to breathe in and out and not push down. She should be watched for about fifteen minutes after the catheter has been removed and if necessary a pad pressed over the anus to assist her to retain the injection. This is much better retained than might be expected, and as soon as the analgesic effect is established all desire to expel it is lost.

Excellent amnesia and analgesia is obtained, usually for three to four hours. The patient generally sleeps soundly, but often turns over and groans as the contractions occur. In domiciliary practice it may be difficult to convince the relations that she is not suffering, but she usually has no recollection of events after the injection. The length of amnesia and analgesia may be increased by two more administrations of 2 c.cm. magnesium sulphate intramuscularly, at intervals of an hour or so. This prolongs and increases the effect of both morphine and ether. If the second stage has not begun when the effect of the rectal analgesia has passed off the whole procedure may be repeated after an interval of not less than four hours, using only 10 grains of quinine in the mixture.

Rectal Paraldehyde

Much the same routine is adopted with paraldehyde with the omission of the magnesium sulphate injections and occasionally the use of scopolamine in the place of morphine, about one to one and a half hours before the rectal injection. The paraldehyde is kept as a stock preparation of 1 oz. of paraldehyde to 4 oz. of olive oil, 3 to 4 oz. being used according to the weight of the patient. We have had no trouble with rectal complications after the injection, this being due, I think, to the rather lavish use of olive oil.

In some cases very little additional anaesthetic is necessary for the second stage. Gas and oxygen or gas and air is used in the hospital, with the addition of a little ether if necessary for the final delivery. Latterly we have been using vinyl ether with good results. A very small quantity is needed, and in its rapidity of action it very much resembles chloroform. Our numbers are, however, too small as yet to quote.

Advantages of Rectal Methods

The points to which I should like to draw especial attention in this rectal form of analgesia are:

1. It is possible to obtain three to four hours' excellent analgesia, which, even if mistimed so that it does not tide the patient over till full dilatation is

Rectal Ether in Oil

Case No.	Type of Case [P = Primipara] [M = Multipara]	Delivery	Length of Labour			No. of Hours between Rectal Injection and Delivery	Condition of Baby	Haemorrhage	Amnesia and Analgesia
			1st Stage	2nd Stage	3rd Stage				
1	P	Spontaneous	28 hrs. 25 mins.	1 hr. 35 mins.	30 mins.	16½ hrs.	Satisfactory	Normal	Very fair
2	P with mitral stenosis and aortic regurgitation	,,	16 hrs. 20 mins.	35 mins.	10 mins.	5 hrs.	White asphyxia	,,	Very good
3	P	,,	56 hrs. 55 mins.	1 hr. 55 mins.	15 mins.	7½ hrs.	Satisfactory	,,	Good
4	M[1]	,,	24 hrs.	25 min.	35 mins.	5½ hrs.	,,	,,	Very good
5	P	,,	23 hrs.	1 hr. 40 min.	15 mins.	1st Inj.: 13 hrs. 2nd Inj.: 6 hrs.	,,	,,	Good
6	P	,,	21 hrs. 20 mins.	55 min.	10 mins.	1 hr. 50 mins.	,,	+	,,
7	P with mitral stenosis	,,	21 hrs. 30 mins.	1 hr.	25 mins.	5 hrs.	Drowsy	Normal	Very fair
8	P	Forceps (for delay in 2nd stage)	22 hrs.	1 hr. 45 mins.	1 hr.	10 hrs.	Very drowsy	,,	Very good
9	M[1]	Spontaneous	45 hrs. 30 mins.	2 hrs. 55 mins.	15 mins.	12 hrs.	Slightly shocked	+	Fair
10	P with mild toxaemia	Forceps (for foetal distress)	12 hrs. 15 mins.	2 hrs.	15 mins.	6 hrs.	Blue asphyxia	Normal	Good
11	M[8]	Spontaneous	45 hrs. 55 mins.	45 mins.	35 mins.	6 hrs.	Satisfactory	,,	Very good
12	P	,,	52 hrs. 20 mins.	1 hr.	30 mins.	9 hrs.	,,	,,	Good
13	P	,,	20 hrs. 45 mins.	1 hr. 15 mins.	15 mins.	11 hrs.	Blue asphyxia	,,	Very good
14	P	,,	26 hrs.	50 mins.	15 mins.	17 hrs.	Satisfactory	,,	Very fair
15	P	Forceps (for persistent posterior)	38 hrs.	2 hrs.	15 mins.	15 hrs.	,,	,,	Good
16	P	Spontaneous	8 hrs.	1 hr. 45 mins.	10 mins.	3 hrs.	Blue and limp	,,	,,
17	P	Forceps (for delay in 2nd stage)	45 hrs. 30 mins.	2 hrs. 20 mins.	10 mins.	11 hrs.	Blue asphyxia	,,	,,
18	M	Spontaneous	19 hrs. 45 mins.	15 mins.	10 mins.	1½ hrs.	Satisfactory	,,	Very good
19	M with mitral stenosis	,,	11 hrs. 10 mins.	20 mins.	20 mins.	1½ hrs.	,,	+	,,
20	P	,,	21 hrs. 45 mins.	15 mins.	20 mins.	7 hrs.	,,	+	,,
21	P (trial labour)	,,	27 hrs. 30 mins.	45 mins.	30 mins.	6 hrs.	,,	Normal	Good
22	P	,,	16 hrs.	45 mins.	30 mins.	3½ hrs.	Drowsy	,,	Very fair
23	P	,,	7 hrs. 10 mins.	50 mins.	7 mins.	4 hrs.	,,	,,	Good
24	P	,,	55 hrs.	35 mins.	55 mins.	30 hrs.	Satisfactory	,,	Fair
25	P	Forceps (for delay in 2nd stage)	42 hrs.	1 hr. 30 mins.	25 mins.	17 hrs.	Drowsy	,,	Fair
26	P	Spontaneous	10 hrs. 50 mins.	35 mins.	7 mins.	2 hrs.	Satisfactory	+	Good
27	P	Forceps (for disproportion)	12 hrs. 30 mins.	2 hrs. 30 mins.	15 mins.	5¾ hrs.	White asphyxia; baby died	Normal	Good
28	P	,,	32 hrs. 20 mins.	2 hrs. 50 mins.	20 mins.	7 hrs.	White asphyxia	+	Very good
29	P	Spontaneous (breech)	11 hrs. 50 mins.	45 mins.	10 mins.	1½ hrs.	Drowsy	+	Good
30	M[8]	Spontaneous	30 hrs.	30 mins.	10 mins.	8½ hrs.	,,	Normal	Very fair
31	P	Forceps (for persistent posterior)	17 hrs. 20 mins.	1 hr. 10 mins.	20 mins.	9 hrs.	Satisfactory	,,	Fair
32	P	Spontaneous	49 hrs. 30 mins.	3 hrs.	15 mins.	1st Inj.: 14½ hrs. 2nd Inj.: 6 hrs.	,,	+	Good
33	P	,,	20 hrs.	30 mins.	8 mins.	6 hrs.	,,	Normal	Fair
34	M[1]	,,	18 hrs. 40 mins.	27 mins.	8 mins.	5 hrs.	,,	,,	Good
35	M[5] with toxaemia	,,	25 hrs. 25 mins.	10 mins.	10 mins.	1½ hrs.	Shocked	,,	Fair
36	P	,,	20 hrs. 30 mins.	1 hr. 10 mins.	5 mins.	1st Inj.: 10 hrs. 2nd Inj.: 4 hrs.	Satisfactory	,,	Good
37	P	,,	24 hrs. 45 mins.	1 hr. 5 mins.	5 mins.	1 hr.	,,	,,	Very good
38	P with double mitral lesion	Forceps	23 hrs. 45 mins.	1 hr. 8 mins.	8 mins.	1st Inj.: 15 hrs. 2nd Inj.: 7 hrs.	Blue asphyxia	,,	,,
39	P	Forceps (for delay in 2nd stage)	22 hrs. 30 mins.	3 hrs. 15 mins.	20 mins.	6 hrs.	Satisfactory	+	,,
40	P	Spontaneous	24 hrs.	1 hr. 5 mins.	15 mins.	14¾ hrs.	Slightly shocked	Normal	,,
41	M[5] with mitral stenosis	,,	25 hrs.	30 mins.	10 mins.	4½ hrs.	Satisfactory	+	Good
42	M[4]; twins	Forceps	49 hrs. 10 mins.	45 mins.	20 mins.	1st Inj.: 17½ hrs. 2nd Inj.: 10 hrs.	Macerated foetuses	+	,,
43	P	Spontaneous	40 hrs. 30 mins.	1½ hrs.	10 mins.	12½ hrs.	Satisfactory	Normal	Very good
44	P	,,	9 hrs. 25 mins.	30 mins.	15 mins.	5 hrs.	Limp; cyanosed	+	Good
45	P	Forceps (for foetal distress)	59 hrs. 45 mins.	—	35 mins.	3 hrs.	Cyanosed	Normal	,,
46	P	Spontaneous	14 hrs. 30 mins.	45 mins.	10 mins.	6 hrs.	Satisfactory	,,	Fair
47	P	,,	10 hrs. 30 mins.	3 mins.	5 mins.	6 hrs.	,,	,,	,,
48	P	Forceps (for delay in 2nd stage due to narrow pelvic outlet)	43 hrs.	4 hrs.	40 mins.	11 hrs.	Stillborn	,,	Good
49	P	Spontaneous	32 hrs. 30 mins.	3 hrs. 30 mins.	10 mins.	15 hrs.	Satisfactory	,,	Very fair
50	P	,,	21 hrs. 50 mins.	1 hr. 55 mins.	10 mins.	3½ hrs.	,,	,,	Good

Rectal Paraldehyde in Oil

Case No.	Type of Case [P = Primipara] [M = Multipara]	Delivery	Length of Labour			No. of Hours Between Rectal Injection and Delivery	Condition of Baby	Haemorrhage	Amnesia and Analgesia
			1st Stage	2nd Stage	3rd Stage				
1	P.	Forceps (for foetal distress)	20 hrs. 35 mins.	1 hr. 25 mins.	20 mins.	5 hrs.	Drowsy	Normal	Fair
2	P.	Spontaneous	28 hrs.	1 hr. 40 mins.	10 mins.	5 hrs.	Satisfactory	+++	Good
3	P.	Forceps (for persistent posterior and foetal distress)	13 hrs. 30 mins.	1 hr. 45 mins.	30 mins.	18 hrs.	Limp and blue	Normal	Poor
4	P.	Spontaneous	10 hrs.	2 hrs.	30 mins.	4 hrs.	Blue asphyxia	++	Good, but restless
5	P.	"	62 hrs.	1 hr. 20 mins.	40 mins.	18 hrs.	Satisfactory	+	Fair
6	P.	Forceps (for delay in 2nd stage)	27 hrs.	3 hrs.	15 mins.	8 hrs.	White asphyxia	Normal	Very fair
7	M.	Spontaneous	39 hrs.	20 mins.	5 mins.	12 hrs.	" "	+	Good
8	P.	Forceps (for foetal distress)	18 hrs.	35 mins.	15 mins.	12 hrs.	" "	Normal	Very fair, but restless
9	P.	Spontaneous	25 hrs.	1 hr. 15 mins.	15 mins.	3½ hrs.	Blue asphyxia	"	Very good
10	P.	"	8 hrs. 20 mins.	30 mins.	10 mins.	1¼ hrs.	Satisfactory	"	"
11	P.	Forceps (for persistent posterior)	13 hrs.	2 hrs. 10 mins.	10 mins.	3¼ hrs.	"	"	Very fair
12	P.	Spontaneous	46 hrs.	1 hr. 30 mins.	10 mins.	4 hrs.	"	"	"
13	P.	Forceps	34 hrs. 15 mins.	1 hr. 22 mins.	13 mins.	8 hrs.	Blue asphyxia	"	Very fair, but restless
14	P.	Spontaneous	24 hrs.	1 hr. 40 mins.	10 mins.	5 hrs.	Shocked	"	Good, but very restless
15	P.	"	32 hrs.	2 hrs. 15 mins.	40 mins.	7 hrs.	Satisfactory	"	Good

reached, gives a complete rest to a tired patient and gives her time for recuperation.

2. The drugs are safe, cheap, can be obtained anywhere, and can be kept as stock mixtures.

3. There is no elaborate administration. Any skilled person can give the rectal injection.

4. The method can be used for cardiac, toxaemic, or chest cases.

We do not claim to have discovered anything new, for American observers have quoted thousands of cases in which the Gwathmey technique has been used as a routine. In this country, however, rectal methods have not won any considerable popularity, and it is for this reason that I wish to show that there is a very definite field for this form of analgesia.

The incidence of forceps deliveries for the rectal ether cases is two and a half times greater than the average for the year, and for the paraldehyde cases three times greater than the average. I must, however, draw attention to the fact that the cases quoted in the tables are unselected groups which have received this form of analgesia for the very reason that they are the more complicated cases of labour, so that it should not be concluded that these methods lead to more instrumental deliveries. The number of lacerations including episiotomy cases in these groups are also 20 per cent. and 8 per cent. higher than the average, but again for the same reason I think it cannot be proved that these are attributable to the analgesic methods.

The resident medical officers have volunteered the information that the rectal methods seem to produce a marked relaxation of the perineum.

In the tables I have reserved the comment " very good " for those patients who have either had no recollection of events after the injection or have made such remarks as " It was wonderful." From our records there is no evidence that these forms of analgesia increase the stillborn rate or the neo-natal rate. The amount of haemorrhage has been tabulated as: normal ; + indicating loss slightly above the average ; ++ loss considerably above the average ; +++ a definite post-partum haemorrhage. There is no evidence to suggest that these methods lead to increased post-partum haemorrhage.

I am much indebted to Professor Fleming for her permission to produce these results.

PROGNOSIS OF CARCINOMA OF THE CERVIX

BY

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In a paper published in the *British Medical Journal* Fletcher Shaw and Dougal[1] remarked on the scarcity in this country of statistical reports on the results of radium treatment of carcinoma of the cervix over a five-year period. The following analysis of 497 consecutive cases treated at St. Thomas's Hospital between the years 1918 and 1930 inclusive may be of interest. In selecting the cases all patients who had previously received treatment elsewhere have been excluded, and only those whose entire care was undertaken by St. Thomas's Hospital are considered.

Follow-up Clinic

After discharge from the hospital all patients suffering from malignant disease of the genitalia are encouraged to attend a special " follow-up clinic," usually at intervals of three months, but more often if the condition of the patient makes this desirable. In this way the progress of each case can be noted, and further treatment given if necessary. Not all patients are able or willing to attend this clinic, for some live in distant parts of the country and others drift away from the hospital after a few years have passed without recurrence of symptoms. The almoner's department makes every effort to trace these patients, but unnotified changes of address make the loss of a certain proportion inevitable. The ill patients nearly always keep in touch with the hospital, and probably only a small number of deaths are missed ; it is usually the fit and healthy patient who becomes tired of attending the clinic, and who does not trouble to communicate her change of address. For example, in the present series of cases the majority of patients lost sight of had been progressing favourably when last seen, and a few had been free from recurrence for four years or longer. Of the 497 patients treated in the years under review 458, or 92.2 per cent., were followed for at least five years or until death. In recent years it has been the practice

to confirm by microscopy the diagnosis in all cases of carcinoma of the cervix. A few of the earlier cases did not have this check, but throughout the series any case in which the diagnosis was in reasonable doubt had this settled by biopsy.

The Age Factor

The patients treated fell into the age groups shown in Table A. In column 1 are shown all the cases treated; column 2 contains only those which were adequately followed up. The average age in the whole series was 50.2 years; and over 50 per cent. of the patients were aged between 45 and 59 years.

TABLE A.—*Age Groups in Patients Treated*

Age in Years	Number of Cases	
	Column 1	Column 2
20–24	2	2
25–29	10	9
30–34	18	16
35–39	49	48
40–44	68	62
45–49	100	95
50–54	81	74
55–59	74	69
60–64	57	49
65–69	24	22
70–74	11	9
75–79	3	3
Total	497	458

In the remainder of this paper only those cases appearing in column 2—that is, those that were adequately followed—will be dealt with. These patients fell into the groups shown in Table B, using the classification advocated by the League of Nations Radiological Subcommittee. The numbers of patients alive after three and five years are shown in the same table.

TABLE B.—*Classification and Survivals*

Extent of Disease	No. of Cases	3-year Survivals	5-year Survivals
Stage 1	79	54	51 (64.6 per cent.)
Stage 2	90	42	26 (28.8 „)
Stage 3	206	18	6 (2.9 „)
Stage 4	83	3	0
Total	458	117	83 (18.1 per cent.)

In allotting cases to the different stages a large number of borderline types were inevitably present, and in a few instances the records were rather vague on certain essential points. In not a few cases laparotomy proved the disease to be considerably more advanced than had been thought after ordinary methods of examination, but every effort has been made to secure the maximum of accuracy. The end-results do not compare favourably with those published by Victor Bonney,[2] and later by Fletcher Shaw and Dougal[1] in this country, but it should be remembered that the cases in this series are consecutive and unselected, and include a number of patients in whom the disease was too far advanced for any form of treatment to be given.

Duration of Symptoms

It was thought that comparison of the length of the histories of patients in this series might throw some light on the prognosis of the disease. In over 70 per cent. of cases irregular bleeding was the symptom which caused the patient to seek advice. The average duration of the symptoms before treatment was started was almost exactly six months. In Table C the cases have been divided into those with histories up to six months and over six months respectively, and the survival rate has been recorded in each instance.

TABLE C.—*Duration of Symptoms in Relation to Prognosis*

Length of History	Number of Cases	3-year Survivals	5-year Survivals
Six months or less ...	330	88	64 (19.4 per cent.)
Over six months ...	128	29	19 (14.8 „)

As would be expected the cases with the longer histories have a worse prognosis, but the duration of the symptoms is of much less importance than the extent of the disease. It was noticed that where two patients were in the same stage, as classified in Table B, the prognosis was the better in the one with the longer history, the carcinomatous process being of slower progress. The end-results were next compared with the ages of the patients to see whether the latter had any bearing on the prognosis. The results are shown in Table D.

TABLE D.—*Age in Relation to Prognosis*

Age Group	Number of Cases	3-year Survivals	5-year Survivals
20–24	2	1	1 (50 per cent.)
25–29	9	2	2 (22.2 „)
30–34	16	5	4 (25 „)
35–39	48	8	8 (16.6 „)
40–44	62	12	9 (14.5 „)
45–49	95	18	14 (14.7 „)
50–54	74	21	13 (17.6 „)
55–59	69	23	18 (26.1 „)
60–64	49	15	8 (16.3 „)
65–69	22	6	3 (13.6 „)
70–74	9	5	3 (33.3 „)
75–79	3	1	0

Examination of these figures appears to show that the prognosis is worst in the pre-menopausal decade. It is probable that some of these patients ascribe irregular bleeding to climacteric disturbance, and therefore neglect to seek advice. This is in agreement with the increased length of history that was common in this age group.

Results of Treatment

In the series under review the treatment varied with the extent of the disease, and was also influenced by the opinions of different surgeons. In general, the majority of cases still in Stage 1 were treated by open operation. It is worth repeating that several cases were found at operation to be considerably more advanced than the findings at routine rectal and vaginal examination had suggested. For this reason it is fair to assume that a proportion of the cases treated with radium alone were in reality more advanced than they appeared. In Table E a comparison of the various methods of treatment is made, the cases being graded as in Table B.

TABLE E.—*Summary of Treatments*

Type of Treatment	Extent of Disease			
	Stage 1	Stage 2	Stage 3	Stage 4
Wertheim's hysterectomy	29	13	2	1
Wertheim's hysterectomy plus radium	21	16	5	0
Total hysterectomy	7	3	1	1
Total hysterectomy plus radium ...	12	14	4	2
Operation abandoned...	0	0	3	2
Radium alone	10	44	191	54
Too advanced for any treatment ...	0	0	0	23
Total	79	90	206	83

In the following tables the results of different methods of treatment are given.

TABLE F.—*Wertheim's Hysterectomy Alone*

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	29	3	15	15 (51.8 per cent.)
Stage 2 ...	13	2	4	3 (23.1 „ „)
Stage 3 ...	2	1	0	0
Stage 4 ...	1	0	0	0
Total	45	6	20	18 (40 per cent.)

TABLE G.—*Wertheim's Hysterectomy Preceded by Radium*

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	21	0	16	15 (71.4 per cent.)
Stage 2 ...	16	2	11	8 (50.0 „ „)
Stage 3 ...	5	0	1	0
Stage 4 ...	None			
Total	42	2	28	23 (54.8 per cent.)

By combining the tables it is seen that Wertheim's method of hysterectomy was employed in eighty-seven instances. Operative deaths totalled eight, the mortality being thus 9.2 per cent.

TABLE H.—*Total Hysterectomy Alone*

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	7	0	7	7 (100 per cent.)
Stage 2 ...	3	0	1	1 (33.3 „ „)
Stage 3 ...	1	0	0	0
Stage 4 ...	1	0	0	0
Total	12	0	8	8 (75 per cent.)

TABLE I.—*Total Hysterectomy Preceded by Radium*

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	12	0	9	8 (75.0 per cent.)
Stage 2 ...	14	1	5	3 (21.4 „ „)
Stage 3 ...	4	0	1	0
Stage 4 ...	2	0	0	0
Total	32	1	15	11 (34.4 per cent.)

By combining the two tables above it is seen that total hysterectomy was performed in forty-four cases. One death was due to the operation, the operative mortality being 2.3 per cent.

TABLE J.—*Application of Radium Alone*

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	10	0	6	6 (60.0 per cent.)
Stage 2 ...	44	0	21	11 (25.0 „ „)
Stage 3 ...	191	0	16	6 (3.14 „ „)
Stage 4 ...	54	1	3	0
Total	299	1	46	23 (7.7 per cent.)

Of the 299 patients who were treated with radium alone one died as a result of the treatment. The immediate mortality was thus 0.33 per cent.

TECHNIQUE OF RADIUM TREATMENT

The technique of radium treatment did not reach any true degree of uniformity until the last three years of the period under review, when the following method was generally adopted. One bar containing 25 mg. of radium element, screened by 1 mm. of platinum and a rubber tube, was inserted into the cervical canal; five needles, each containing 5 mg. of radium element screened by 0.5 mm. of platinum were also inserted directly into the growth. Three separate applications were given, with an interval of from one to two weeks between the first and second applications, and of two to three weeks between the second and third. The first application was left *in situ* for forty-eight hours, and the second and third for twenty-four hours each, this giving a total dosage of 4,800 mg.-hours. If the neoplasm recurred the patient was either given further radium therapy or else deep *x*-ray therapy, the choice of treatment depending on the individual patient. In a certain number of cases the usual radium dosage was reduced on account of the development of burns.

End-results

In this series of cases it is clearly unfair to make a direct comparison of the results of operation and of radium therapy, for operation was practically limited to cases that were thought to be in Stages 1 and 2, and the operability rate was only 29.4 per cent. On the other hand, only twenty-three patients (5 per cent. of those followed up) were considered to be too far advanced for radium treatment. In Table K a summary of the end-results is given in the form of the percentage of five-year cures.

TABLE K.—*Five-year Cures after Different Treatments*

Treatment Adopted	Stage 1	Stage 2	Stage 3	Stage 4
Operation alone ...	61.1 per cent	25.0 per cent	Nil	Nil
Operation plus radium	69.7 „ „	36.7 „ „	Nil	Nil
Radium alone	60.0 „ „	25.0 „ „	3.14 per cent.	Nil
Combined results...	64.6 per cent.	28.8 per cent.	2.9 per cent.	Nil

It will be seen that radium treatment followed by operation gave the best results in Stages 1 and 2 in this series. The cases in Stage 3 show a very poor prognosis, but it should be mentioned that a large number of these were very advanced and on the borderline of Stage 4. Burns were not infrequently caused by the radium technique described, this probably being a result of the rather poorly screened needles. At present a different technique is being evolved.

The analysis of the series demonstrates the importance of early diagnosis of carcinoma of the cervix, the extent of the disease being of greater importance in the prognosis than any other factor. The results of operation on cases in Stages 1 and 2 are slightly better than those of radium alone, but it will be noticed that the immediate mortality of radium treatment is almost negligible.

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ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

RELATIVE VALUES OF TWO METHODS AS SHOWN BY SUBSEQUENT SCHICK TESTING

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Active immunization against diphtheria by the "one-shot" method has aroused much controversy during the last year or two, and the comparison of results obtained by this method and those obtained in the same community by three injections of the previously more used preparations is of importance. The following review shows the results obtained in Southampton during the last two years.

Two Years' Experience in Southampton

Southampton is a town of 178,000 inhabitants and possesses both industrial and residential characters. Immunization in Southampton was begun during a period of epidemic prevalence of diphtheria. The initial response to take advantage of the facilities offered was too great to allow of preliminary Schick testing in any but too few to enable us to arrive at reliable conclusions as to the Schick negative rate, but experience in other towns has shown that the large majority of children under 10 years are positive reactors.

Since immunization began the materials we have used have been toxoid-antitoxin floccules (Burroughs Wellcome and Co.; Evans Sons Lescher and Webb) and alum-precipitated toxoid (Parke Davis and Co.). Owing to a shortage of supply of floccules we were for a short time compelled to use toxoid-antitoxin mixture (Burroughs Wellcome and Co.) as a substitute. The dose of T.A.F. and T.A.M. was 1 c.cm. at fortnightly intervals for three injections. The dose of A.P.T. was 0.5 c.cm.—one injection only.

This review compares the results, as shown by subsequent Schick testing, between the three injections of antigen and the "one-shot" method. The actual inoculations and Schick testing were carried out at elementary schools, child welfare centres, and special clinics. The Schick testing was carried out by the same group of medical officers throughout, so that discrepancies in the reading of Schick tests can be discounted.

Although children of all ages over 12 months were treated, alum-precipitated toxoid was employed only in those under 10 years in view of reported severe reactions in older children. In order to make the findings entirely comparable, Tables I and II refer to children under 10.

Comparison of Methods

It was felt to be important to know whether one method attained immunity more rapidly than the other, and consequently the results are tabulated to show percentages of failures in immunity establishment at various periods up to twelve months after the last inoculation. It should be noted that the various groups of children were not retested; neither, however, were they in any way selected, so that each group is comparable with the others and forms a fair sample of the general community at the selected age group.

TABLE I.—*Results of Schick Test in Children under 10 at the End of Certain Periods following Inoculation with T.A.F. (T.A.M.) with Percentages*

At end of...	2 Months	3 Months	4–6 Months	7–12 Months	Total
Number of children tested	342	357	671	2,303	3,673
Number of children Schick positive	6	7	5	15	33
Percentage of children Schick positive	1.75	1.96	0.75	0.65	0.9

TABLE II.—*Result of Schick Test in Children under 10 at the End of Certain Periods following Inoculation with A.P.T. with Percentages*

At end of...	2 Months	3 Months	4–6 Months	7–12 Months	Total
Number of children tested	190	157	248	230	825
Number of children Schick positive	18	20	39	43	120
Percentage of children Schick positive	9.47	12.74	15.76	18.7	14.55

The above tables indicate most strongly that the three-injection method of T.A.F. (T.A.M.) gives much more certain immunity than does the "one-shot" method with A.P.T., as judged by subsequent Schick testing.

The figures would also appear to show that in a number of children immunity from three injections of T.A.F. (T.A.M.) may take longer than three months to develop, though the vast majority will have acquired immunity at the end of two months. The children who show delayed development of immunity may be those who for various reasons—for example, until recently domiciled in rural districts—have previously avoided contact with infection.

With regard to the "one-shot" method as shown in Table II the figures indicate the possibility of a short-lived complete immunity in a considerable number of children. This, however, cannot be taken as a definite conclusion as no group of children has yet been retested, but it agrees with Volk's suggestion of a possibly high Schick reversion rate.

Comparative Review of Older Age Groups

TABLE III.—*Result of Schick Test in Children over 10 at the End of Certain Periods following Inoculation with T.A.F. (T.A.M.) with Percentages.*

At end of...	2 Months	3 Months	4–6 Months	7–12 Months	Total
Number of children tested	201	192	552	1,055	2,000
Number of children Schick positive	4	4	10	19	37
Percentage of children Schick positive	2	2.08	1.81	1.8	1.85

Comparison with Table I indicates a slightly increased difficulty in establishing immunity in older children. A small number of children over 10 years received "one-shot" inoculation of 0.5 c.cm. A.P.T. The total number so treated who were subjected to Schick test more than two months subsequently was 102, and this number

is considered too small to be subdivided as in the preceding tables. The number of positive reactors in the group subsequent to inoculation was thirteen, which gives a percentage of 12.74. For all practical purposes, then, the general conclusions with regard to the relative merits of the two methods of immunization under discussion are the same for children of all ages.

Immunization against diphtheria began in Southampton in February, 1934. From that date until the end of May, 1936, 22.1 per cent. of the population under 16 years of age had been immunized, though the majority had not yet been subjected to subsequent Schick testing. During the period from June, 1934, till May, 1936, inclusive, 1,180 children under 16 were notified as suffering from diphtheria. Of these forty-four, or 3.7 per cent., had been actively immunized against the disease or had been found to be immune.

The incidence rate of diphtheria during the period under discussion among children under 16 years of age was 26.8 per 1,000. Among the children of the same age during this same period who had received a full immunizing course, with or without subsequent Schick testing, the incidence rate was 4.5 per 1,000.

The following table gives clinical and bacteriological particulars concerning the forty-four children notified as suffering from diphtheria after immunization. It will be seen that the severe cases among them had not had the Schick test performed subsequent to immunization, and it is such occurrence which is liable to bring disrepute upon the measure.

TABLE IV.—*Occurrences of Diphtheria in Immunized Children*

	Number	Clinical Signs				Bacteriological Signs		
		None	Mild	Severe	Fatal	Original Swab + for K.L.B.	Subsequent Swabs + for K.L.B.	Subsequent Swabs Negative
Schick test negative (no immunizing course given).	3	2	1	—	—	3	—	3
3 injections T.A.F., subsequent Schick test negative	8	4	4	—	—	8	3	5
1 injection A.P.T., subsequent Schick test negative	3	2	1	—	—	3	2	1
3 injections T.A.F., no subsequent Schick test	19	8	10	1	—	19	8	11
1 injection A.P.T., no subsequent Schick test	11	4	5	2	—	11	6	5
Total	44	20	21	3	—	44	19	25

Conclusions

The "one-shot" method of immunization with A.P.T. is much less certain in result than the three injections of T.A.F. and T.A.M. As the "one-shot" method is in considerable favour with general practitioners the uncertainty of its results should be clearly realized. A considerable Schick reversion rate is probable after the "one-shot" method with A.P.T.

Severe diphtheria is possible after either method of immunization, but no severe cases have occurred in a large series where immunity was confirmed by subsequent Schick testing. Schick testing subsequent to immunization is essential for the reputation of either method.

Research on the chemistry and physics of glass surfaces to aid in the development of scientific apparatus and ophthalmic instruments has been started at the Mellon Institute of Industrial Research, University of Pittsburgh, by the Bausch and Lomb Optical Company of Rochester, New York. The first studies will be concerned with the effects of environmental factors on the durability of the various types of glass used in optical instruments. Dr. Frank L. Jones will be in charge of these investigations.

CYSTS OF THE MESENTERY

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Our interest in mesenteric cysts was stimulated by a case of unusual interest which came under our care, and a description of it, given below, adds yet another to approximately five hundred already recorded. Benevieni's account of this condition discovered at necropsy in 1507 is the earliest we are able to trace.

The surgical adventure which we attempt to describe here had one prominent feature in common with those described elsewhere—namely, misdiagnosis. In other respects it presented a series of clinical and pathological surprises sufficiently striking to justify an attempt to bring them to the notice of our profession.

Case Report

A male aged 21 years, an apprentice to a shipping firm, was admitted to the Bristol Royal Infirmary on October 26th, 1935, and the following history was obtained.

Four days before admission he noticed vague generalized abdominal pains which, intermittent at first, gradually became more persistent and colicky in character and localized to the right lower abdomen.

Nausea and anorexia were present, but no vomiting, and the bowels were open normally. He gave no history of any previous attack, and was unable to recall any serious illness, though his work necessitated continuous service in tropical climates.

On examination we found his temperature 100° F., pulse rate 84, and the tongue dry and coated with a thick white fur. There was generalized abdominal tenderness and rigidity, most marked in the right iliac fossa, with guarding of the right rectus abdominis. Rectal examination elicited tenderness to the left of the recto-genital pouch, but no localized lump. There were no other positive signs.

A diagnosis of acute appendicitis was made and immediate operation advised, to which the patient consented.

OPERATION

The abdomen was opened through a right gridiron incision; the appendix appeared slightly inflamed, fibrous, and adherent to surrounding structures; it was removed. Multiple enlarged lymphatic nodes in the mesentery were thought to be due to the inflamed condition of the appendix, but in an attempt to trace the extent of these a hard calcified gland the size of a large walnut was discovered. As this was considered to be a potential source of abdominal pain it was excised.

Further exploration revealed the presence of a cystic tumour the size of a tangerine orange, suspended from the mesentery by a pedicle which was twisted, twice rotated in an anticlockwise direction. The pedicle was ligatured and the cyst removed; it was intensely congested, and contained a chocolate-coloured fluid. A second and larger cyst was then found, irremovable owing to the wide attachment at its base, aspiration of the chyle from this revealing the fact that it was multilocular.

After evacuation and rupture of the loculi into the main cystic cavity, marsupialization was carried out through a small incision in the left paramedian position, just above the umbilicus. In the absence of any further lesion the original incision was closed in the customary manner.

SUBSEQUENT PROGRESS

Two ounces of chylous fluid drained from the marsupial pouch and the wound healed rapidly. Recovery was uneventful, and the patient was allowed up on the sixteenth day.

PATHOLOGICAL REPORTS

Mesenteric cyst. The cyst wall is composed of fibrous tissue and shows the effects of torsion. The inner lining of the cyst has been destroyed. Fluid from this specimen: chylous fluid into which haemorrhage has occurred. The aspirated fluid is chylous, culture sterile.

Gland from mesentery: calcified gland, evidently the result of tuberculous infection.

Appendix: this shows marked submucosal fibrous thickening, the result of previous acute inflammatory attacks.

We are interested to compare and contrast the findings and procedure in this case with those already described, and consider it appropriate to draw attention to some of the outstanding features of the condition.

Diagnosis

Correct preoperative diagnosis is the exception rather than the rule, and by many surgeons of experience is stated to be impossible in the majority of cases. This is due to the fact that there is no definite symptomatology for the condition, which usually simulates acute appendicitis or intestinal obstruction. Roller states that "when acute complications ensue the differential diagnosis would have to include almost every cause for the acute abdomen, so varied may be the manifestations." In the present instance the sessile cyst was not sufficiently tense to be palpable through the thickness of the abdominal wall, even in the complete absence of rigidity and guarding, and there is little doubt that the pedunculated cyst became tense only after torsion and was too efficiently guarded by the superimposed muscle to allow detection.

Complications

Torsion of a mesenteric cyst is a complication of great rarity, but owing to the difficulty of locating concise accounts of isolated cases we find it impossible to make a percentage estimate of this accident. There can be little doubt that it was responsible for this patient's acute symptoms.

Intracystic haemorrhage may occur, also rupture—(*a*) into the bowel and (*b*) into the peritoneal cavity—with consequent peritonitis, ileus, etc. In addition, it is alleged that these cysts may be responsible for the following abdominal catastrophes: (1) intestinal obstruction due to pressure or adhesions, (2) volvulus, and (3) intussusception. Malignant change is extremely uncommon, Warfield citing three recorded cases in twelve years.

Aetiology, Pathogeny, and Associated Abdominal Lesions

We have been unable to trace an account of any case presenting other definite lesions within the abdomen. The natural trend of thought leads one to attempt to associate the concomitant lesions in this case with the formation of mesenteric cysts. We wonder whether the lymphatic infiltration following upon repeated attacks of mild appendicitis predisposed to occlusion of certain of the lymphatic channels; whether the tuberculous infiltration would bring about this change; and whether the appendicular inflammation itself was of tuberculous origin, thus giving support to the theory that a definite sequence of events led up to the final acute illness.

Warfield admits that necrosis of a tuberculous lymph node may account for the formation of a mesenteric cyst, but considers that the theory of lymphatic obstruction from this cause leading to cyst formation is so unlikely that it should be discarded. The clearest pathogenic classification is that given by Higgins and Lloyd, as follows:

(*a*) Cysts of embryonic origin.
(*b*) Of intestinal origin, diverticula.
(*c*) Unclassified anomalous varieties such as traumatic, parasitic, obstructive, etc.

The age incidence varies from infancy to old age, the commonest being between 30 and 40 years, slightly more common in women than in men.

Pathology and Pathological Anatomy

The shape and size of these cysts are very variable, ranging from minute lymphatic dilatations to those which fill the whole peritoneal cavity and, as our case illustrates, they may be sessile or pedunculated, unilocular or multilocular; 70 per cent. occur in the mesentery of the small intestine, and of these 25 per cent. are found in the mesentery of the ileum. The true mesenteric cyst, as defined by Roller, must occur between the layers of the mesentery or under the gut serosa, and must not be in the position generally described as retroperitoneal.

Treatment and Prognosis

The treatment is entirely operative, and may be classified as follows:

1. Enucleation. This is obviously the most desirable, but not always practicable. The mortality of this operation is 9 per cent.
2. Enucleation with bowel resection, which may obviously lead to a considerable surgical undertaking with the attached risks. The operative mortality is 25 per cent.
3. Marsupialization has a mortality of 16 per cent.
4. Aspiration only, following which recurrence is almost certain.

The choice of operation depends upon a number of factors, most of which are obvious and arise out of the varied circumstances of each individual case. The ultimate mortality is in the region of 30 per cent.

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R. Caussé (*Ann. d'Oto-laryngol.*, July, 1936, p. 661) describes fourteen cases of congenital nystagmus and emphasizes the importance of differential diagnosis from vestibular nystagmus—for example, in neurological conditions a wrong diagnosis of disseminated sclerosis may be made. In compensation cases after head injuries a congenital nystagmus may be present. If the eye movements are not recognized as congenital in origin it is easy to make a wrong diagnosis of an inner-ear lesion. The main difference lies in the type of nystagmus. In vestibular nystagmus the eye movements are alternating slow and quick jerks, while in congenital nystagmus one usually sees regular to-and-fro movements ("pendulum"). This only applies when the patient looks forward. When the eyes are made to look sidewards or upwards, congenital nystagmus also has slow and quick components like vestibular nystagmus. Further, among the fourteen cases there were four in which the congenital nystagmus had vestibular characteristics even on looking forward. Therefore the type of nystagmus alone is not sufficient for differential diagnosis. Congenital nystagmus is unstable. There are periods when it becomes arrested and at other times the rhythmic movements are greatly exaggerated. Vestibular nystagmus, on the other hand, is absolutely constant and regular. Vestibular tests applied to a subject with congenital nystagmus show the reactions of a normal labyrinth. The nystagmus may be increased by the added vestibular response or it may be abolished temporarily, because the eye movements produced by the test are in the opposite direction. The majority of patients with congenital nystagmus have some abnormal eye condition—for example, corneal opacities or high myopia. In very exceptional cases the vision may be normal. Rhythmic movements of the head are occasionally seen, and these are synchronous with the eye movements. The presence of such head movements ("cephalic nystagmus") practically always justifies a diagnosis of congenital nystagmus.

MILK ALLERGY IN ELEMENTARY SCHOOL CHILDREN

A PRELIMINARY REPORT

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Milk is recognized as one of the commonest foods responsible for allergic manifestations, and it has been suggested in a recent paper[1] that "the widespread drinking of milk by school children and others may yet have to be considered in the light of food allergy." Its ingestion by susceptible people may be followed by nausea, vomiting, abdominal pain, diarrhoea, headache of the migrainous type, asthma, eczema, urticaria, or nasal catarrh. The degree of sensitivity, however, varies considerably. Some people are unable to tolerate the smallest quantity—even the taking of butter may induce a severe reaction. In others, symptoms may only follow the repeated ingestion of fresh milk—suggesting cumulative effect. Again, boiled or condensed milk may be tolerated by some who cannot take fresh milk.

Although specific sensitivity to any food—particularly milk—may be occasionally inherited, it is more usual for the allergic diathesis to be hereditary. That is to say, descendants inherit a constitutional make-up which predisposes them to the development of sensitivities, and so may exhibit reactions to any allergic agent with which they come into adequate contact at any time from birth onwards. It has been suggested that sensitivity to milk in children who have inherited the allergic diathesis may be developed as the result of excessive drinking of milk by the mother during pregnancy or the nursing period, by over-feeding the child with milk, or by giving it in too concentrated form in artificial feeding.

While investigating cases of food allergy in adults under the care of Professor A. M. Kennedy at Llandough Hospital, it was noted that some patients, particularly those suffering from gastro-intestinal disturbances, often of their own accord refrained from taking milk. On being questioned they would state that they disliked it, or that "it never seemed to suit them." Further inquiry would elicit a family or personal history of allergy, and on using a trial dietary definite sensitivity to milk would be proved. It was then obvious that these people had good reason, whether conscious of it or not, for their dislike of milk—they were allergic to it. It is a matter for speculation whether their inherent dislike might not be considered a subconscious protective mechanism.

Scope and Method of Investigation

Bearing this in mind it occurred to us that a study of those elementary school children who had refused or shown a disinclination to take the milk supplied at school might reveal an allergic foundation for their attitude. Dr. Greenwood Wilson, the medical officer of health and school medical officer for Cardiff, kindly assisted us by sending a circular letter to the head teachers of all the elementary schools in his area requesting the names and addresses of those children who had refused or were rather averse to taking the milk supplied, and making arrangements for us to examine them in Cardiff. Only 150 of them, however, have been examined to date, but the results obtained in this group would appear to be sufficiently instructive to warrant publication of a preliminary report.

Each child was examined personally and the parent or guardian cross-questioned. Besides finding out why the child refused or disliked milk, we made careful inquiry into the personal and family history for evidence of allergy and allergic inheritance. Direct questions were asked in regard to eczema, asthma, hay fever, migraine, urticaria, and gastro-intestinal disturbances, and whether any other members of the family disliked or were unable to take milk. The effects produced by the ingestion of milk were carefully inquired into and the age at which symptoms, if any, first appeared was noted.

Results

The 150 cases examined may be classified in accordance with the results obtained as follows.

Group 1a.—Eighty-eight children (58.7 per cent.) refused the milk because its ingestion was always followed by allergic manifestations of some sort. Of these, forty-seven disliked milk because every time they took it, although they did not vomit, they suffered from a feeling of nausea so marked that they would not take milk of their own accord; thirty-seven refused milk because it produced vomiting; two had asthma after it; one had severe abdominal pain; and one developed eczema. In fourteen of the thirty-seven children who vomited there were accompanying migrainous headaches, and in another two the children suffered from fainting attacks. The parents had noticed the definite relation of these fainting attacks to the ingestion of milk, for on withholding the milk the attacks did not recur. In none of the thirty-seven cases could any other cause be discovered to account for the vomiting. In all except one of the eighty-eight cases there was a personal or family history of allergy.

Group 1b.—Thirty-six children (24 per cent.) had no nausea or other symptoms after milk, but disliked it both at home and at school and so did not take it. Some of these children could not remember ever having taken milk, which might explain the absence of symptoms. In all except four there was a personal or family history of allergy.

The age of onset of the symptoms or dislike of milk is shown in the following table:

	Number of Cases.	
	Group 1*a*.	Group 1*b*.
Under 18 months	39	24
Over 18 months and under 3 years ...	11	5
Over 3 years and under 5 years ...	21	4
Over 5 years...	17	3

Group 2.—Twelve children (8 per cent.) had no symptoms after milk but disliked milk at school only. The reason given in every case was its taste (the school milk is pasteurized). Five children had either a personal or family history of allergy; two of these did not get milk at home, the reason given being poverty, while the other three, two of whom belonged to one family, took it at home without any upset. The remaining seven children took milk freely at home without any ill effect; none had any allergic history. In this group the dislike was, of course, first manifested when the child came to take school milk—that is, when over the age of 5 years.

Group 3.—Fourteen children (9.3 per cent.) refused milk at school for various reasons unconnected with their health. The parents thought them "big enough without it," "it interfered with the midday meal," "well enough without it," or the parents had not troubled to take advantage of the scheme, or did not wish to do so. None of these children disliked milk, and all took it at home without ill effect. Only two came of allergic stock: one had a family history only, the other a personal and family history.

Remarks

Considering at the outset the fifteen cases in Group 3, it is obvious that the refusal of milk was in no way associated with symptoms of any sort. The children were, for all practical purposes, average healthy individuals. Two came of allergic stock and only one of these was as yet showing allergic symptoms, but not to milk. The dislike of the taste of the school pasteurized milk advanced as an explanation by the twelve children in Group 2 is perhaps understandable, but it is notable

that five of them had an allergic history and two of the latter never had milk at home. Group 1*b* is interesting. Thirty-two out of the thirty-six belonged to allergic stock, and all disliked and avoided taking milk. Many had no recollection of ever taking it. The definite dislike of milk associated with the allergic family stock in all but four cases and the early age at which it was first manifested in the majority would appear to justify one in ascribing the aversion to milk as an allergic manifestation of a protective nature.

Summary and Conclusions

Investigation has been made of 150 elementary school children who had refused milk at school. Out of these, 124, or 82.7 per cent. (Groups 1*a* and 1*b*), appeared to be allergic to milk. They all had symptoms after milk, or a very definite dislike of it, and all except five gave a personal or family history of allergy. Twelve, or 8 per cent. (Group 2), disliked the school milk only on account of its taste (it was pasteurized), but it is significant that five of them came from allergic stock. Fifteen, or 10 per cent. (Group 3), refused the school milk for reasons unconnected with health. It did not disagree with them and apparently they were normal children; only two had allergic histories. Forty normal children taking milk readily without ill effects were examined as a control; only four (10 per cent.) gave a personal or family history of allergy.

Admittedly the numbers investigated to date are small, but the results obtained appear significant. In Cardiff 14,000 of the 32,500 elementary school children take milk at school daily, but why the remaining 18,500 do not is not yet known. The results of our preliminary investigation suggest that allergy to milk may play a not unimportant part. This suggestion appears to gain some support from the replies obtained recently to a circular letter sent out by the school medical officer, London County Council,[2] asking for the reasons why 85,447 out of 496,542 children had not availed themselves of the opportunity of buying milk at school. The replies showed that 35 per cent. had a distaste for milk, 2 per cent. disliked cold milk, and 0.5 per cent. did not take it on account of vomiting or because the doctor stopped them. In view of our findings it seems more than a probability that the 35.5 per cent. have an allergic diathesis and very good reason for refusing the milk.

While the popular movement to encourage the widespread consumption of milk has much to commend it, the fact that all people cannot take it with impunity should be remembered. Those who are allergic to it must avoid it or suffer. The refusal or disinclination of many children to take milk at school should be given due consideration. Their attitude is probably protective in nature to prevent them suffering allergic reactions, and possibly, also, to give them time to develop a gradual immunity to milk. It is known that desensitization to milk, as to other foods, not infrequently occurs as a result of its omission from the diet over a lengthened period, and the degree of tolerance often varies with the interval. Thus milk should not be forced on these children, but rather withheld.

It is with pleasure that I acknowledge my indebtedness to Professor A. M. Kennedy, Director of the Medical Unit, Welsh National School of Medicine, for advice and guidance in this investigation, and to Dr. J. Greenwood Wilson, medical officer of health and school medical officer of Cardiff, and Dr. D. G. Morgan, Medical Superintendent of Llandough Hospital, Cardiff, for their help and encouragement.

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Clinical Memoranda

Unusual Case of Infection with Corynebacterium Diphtheriae

Although diphtheritic infection of members of the medical and nursing staffs of infectious diseases hospitals is not rare, there are unusual features about this case which probably make it worth recording. Furthermore, it is a personal case, as I myself was the patient, so I am able to guarantee the accuracy of the symptoms.

CASE RECORD

It happened in January, 1929, when I had been superintendent of the City (Fever) Hospital, Capetown, for about eighteen months. I had been in close daily contact with diphtheria patients since my appointment, and was frequently called in to perform the operation of tracheotomy. Night calls were common, and as I had no resident assistant I was somewhat overworked, mildly "run down," and suffering from a slight unilateral conjunctivitis. A day or two after doing a tracheotomy I noticed a small, rather tender vesicle on the index finger of my left hand, and surmised that I had nicked it with the knife while operating. It was obviously slightly infected, and in the course of the next few days a small pustule formed and burst. The lesion was sluggish and did not clear up, but the pustule kept on discharging. I took little notice of the condition, and it caused me little or no real inconvenience. About ten days after the tracheotomy I spent an afternoon fishing and bathing in the warm waters of False Bay. When I returned home I seemed to have a mild cold in the head and felt rather tired and distinctly depressed. Next morning when I awoke I still had the sensation of mild catarrh, and on blowing my nose I was surprised to find a piece of membrane about the size of a postage stamp in my handkerchief.

I was rather at a loss as to what I should do, and decided to take further steps if more membrane appeared. I did my ward round, and shortly before lunch time I again blew my nose and found membrane in my handkerchief. I put the piece of membrane into a test tube and decided to show it to the Union Government pathologist on my way to the tuberculosis clinic. As my throat was mildly uncomfortable—it was never sore at any stage—I examined it in a mirror and thought I saw a strip of membrane on my right posterior pillar. The Government pathologist kindly examined my throat that afternoon, but as the light was extremely poor he could see nothing. He then made smears from the piece of membrane and took swabs from finger and throat, but was unable to find diphtheria bacilli in the dried smears. Cultures were put up, and I went back to work, spending a busy afternoon at the tuberculosis clinic.

Next morning as I was beginning my ward round the Government pathologist rang me up, and in suspiciously sympathetic tones asked me how I was feeling. I replied that I felt all right, and he proceeded to tell me that the three cultures were positive. I did not feel half so well after I had heard the news. I went off duty and again examined my throat in a mirror, and saw unmistakable membrane on the right posterior pillar.

An intramuscular injection of 40,000 units of diphtheria antitoxin made the throat clear up in a few hours. The small whitlow persisted for a day or two, as did a blood-stained discharge from the left nostril. Convalescence was uneventful and there were no complications. The conjunctivitis, which apparently was non-diphtheritic, persisted for two or three weeks, but was at last cured by using Mulford's No. 18 ointment at the recommendation of an ophthalmic surgeon.

COMMENTARY

The interesting points of the case are: (*a*) the rather unusual path of infection—that is, from finger to nose and then to throat; (*b*) the absence of severe toxaemia

although there was membrane in nose and throat, usually a dangerous combination ; (*c*) the three negative results from the direct smears. The examination was made by a capable medical bacteriologist and he gave the matter his careful personal attention. It is reasonable to expect that the piece of membrane would have shown corynebacteria diphtheriae even if the finger and throat swabs were negative on direct examination. This shows the unreliability of direct smears and the necessity for waiting for the results of the examination of the culture. Incidentally the organisms from the three cultures proved virulent when subjected to the guinea-pig test.

J. F. WICHT, M.D.,
Medical Superintendent of Municipal Hospitals, Capetown.

Haematemesis Treated with Snake (Russell Viper) Venom by Mouth

For the last two and a half years there has been under my care an old lady, now aged 80. She has suffered periodically for thirty years from epigastric pain, which has been made worse by the ingestion of food, and relieved by vomiting. In 1914 she had a profuse haemoptysis. The history of pain and occasional vomiting continued until first seen some two and a half years ago. At that time she was suffering from a prolonged attack of the pain and vomiting.

The patient was a thin, frail old lady, in a poor state of general health. Under treatment with gastric sedatives her condition improved, although fairly continuous treatment was necessary to maintain this improvement. She occasionally complained of a "pressing" pain on the top of the head, and this was found to coincide with a rise of blood pressure. This was sometimes of a rather high order—circa 275 systolic. On these occasions treatment reduced the blood pressure, for a time, to a more normal level, and the headache disappeared. On July 1st, 1936, the blood pressure was found to be raised to its old level. There was at no time any renal involvement.

On July 19th, at 10 a.m., the patient vomited one and a half to two pints of blood. Rest in bed and abstention from food and drink was advised. The haematemesis continued and 1/6 of a grain of morphine sulphate was given hypodermically. It continued through the night, and in view of the extreme age of the patient, and the quantity of blood which had been lost (four pints of blood is a very conservative estimate), great alarm was felt. The whole of the vomit had been preserved by the daughter with unusual and commendable foresight. The pulse rate had risen to 120. At first, in view of the high blood pressure, no alarm was felt. It was thought that the two conditions would counteract one another, to their mutual advantage, and that, all other things being equal, a patient with a massive haemorrhage and high blood pressure stood a better chance of recovery than one with a normal blood pressure. However, with the persistence of the haemorrhage this attitude could no longer be upheld, and having recently acquired some snake venom for the treatment of possible emergencies of a haemorrhagic nature, I decided in desperation, and with not a little trepidation, to try this new remedy.

The preparation used was "stypven," prepared by Burroughs Wellcome. The contents of one phial were administered by mouth. Vomiting of blood had continued to within half an hour of administration—that is, for twenty-four hours. There was no further haemoptysis. The following day a few ounces of clear gastric secretion were vomited, since when there has been no further vomiting. At first small sips of water only were allowed, followed by glucose water, and then by cold Benger's food. On August 24th the patient began to resume her normal life. The blood pressure, incidentally, was then 160/80. (October 30th: patient now fully recovered.)

It appears fairly clear that the condition was one of erosion of a blood vessel in an old ulcer crater. The high blood pressure compensated in some measure for the loss of blood volume, and probably contributed to the recovery of the patient ; although it was also doubtless responsible for a greater degree of haemorrhage, if this was of arterial origin, as was probably the case. Apparently there is no danger from absorption of the venom at the site of the ulcer—at least in the dosage used.

Leeds. A. BARRATT, M.B., M.Sc.

Acute Appendicitis with Carcinoma of the Caecum

I was much interested in an article published in the *British Medical Journal* of May 4th, 1935, and with Drs. Banks and Green must confess to some surprise that only three cases of the association of acute appendicitis with carcinoma of the caecum could be traced in the literature. I would like to record yet another example of this association.

Miss X., a laundress, 38 years of age, had enjoyed good health until the end of May, 1934, when she was seized with right-sided lower abdominal pain. She went to bed for three days, at the end of which time she returned to work, feeling somewhat better. She continued at her work for three weeks, but the abdominal pain recurred and was accompanied by nausea and vomiting. During the following week, while her general condition improved, she experienced pain on moving her right leg. A tender throbbing swelling about the size of a hen's egg now made its appearance in the right iliac fossa. Fomentations were applied for some seven days, and on incision of the swelling there was a profuse discharge of very foul pus.

Although the local condition improved greatly, the patient began to lose weight, and a fistula in the right iliac fossa continued to discharge purulent material. In November, 1934, she was admitted with this fistula to a hospital, where examination of the discharge failed to reveal any tubercle bacilli or actinomyces ; the Wassermann reaction was also negative. Lipiodol injected into the fistula passed freely to the pelvis.

She returned home about the middle of January, 1935, and her only complaint, apart from loss of weight and some right iliac fossa pain, was the occurrence of diarrhoea, which immediately followed the three principal meals of the day. She was admitted to the Birkenhead Municipal Hospital on March 22nd, 1935. A barium enema failed to reveal any abnormality in the caecum. Lipiodol injected locally again tracked into the pelvic cavity, none entering the caecum. There was a hard circumscribed mass in the region of the caecum, and there seemed to be little doubt but that the case was one of carcinoma of the caecum, which had escaped diagnosis on account of the occurrence of an appendicular abscess.

I carried out the usual resection for carcinoma of the caecum, and performed an end-to-side ilio transverse colostomy. The only difficulty encountered was due to adhesions binding the caecum to the peritoneum of the right iliac fossa.

The specimen showed that the appendix had been destroyed in the suppurative process described above, and on section the tumour proved to be a columnar-celled adenocarcinoma.

The patient was re examined on August 26th, 1936. Her general condition was fairly satisfactory. Examination of the abdomen, however, indicated local recurrence of the growth. There was no ascites or evidence of secondary tumours in the liver. The fistula in the right iliac fossa had recurred and was the seat of malignant change.

The patient's weight has fallen from 10 stone 6 lb. on May 22nd, 1935, to 9 stone 5 lb., but apart from the inconvenience of the fistula she enjoys relatively good health.

My thanks are due to Mr. R. A. Grant for permission to publish these notes.

JAMES COOK, F.R.C.S.Ed., D.P.H.,
Deputy Medical Superintendent, Birkenhead Municipal Hospital.

Reviews

SURGERY OF THE NERVOUS SYSTEM

Though the student and the physician are well supplied with textbooks of neurology there is no book which makes a short yet comprehensive review of the great advances in the surgery of the nervous system that have occurred since the beginning of the century. Professor LOYAL DAVIS of the North-Western University, Chicago, has therefore attempted to supply this need, and he states his intention of compressing the information distributed in many large monographs into a book[1] of four hundred pages which will tell the practitioner what neurological surgery can achieve, thus enabling him to give accurate and sound advice to his patients. The work is therefore to be judged from the practitioner's standpoint, and we must say at once that several of its chapters fail in their object, though others, particularly those dealing with cerebral tumours and peripheral nerve injuries, are extremely valuable, and give the reader a clear guide to rational therapy.

The book opens with a chapter on diagnosis which is detailed enough without being too long, and we then pass to the consideration of cerebral injuries. Here the style is colourless, vague, and rambling, and instead of formulating definite rules for the management of these serious and now too frequent emergencies, the author shows a tendency to digress into theory, and to forget the practical importance of laying down exactly what action is to be taken in given circumstances. The chapter on intracranial tumours bears testimony to Professor Davis's wide experience, and is well illustrated by skiagrams and photomicrographs. A little more might profitably have been added about operative technique, for surely the doctor must know with fair accuracy what the operation involves if he is to advise his patient to submit to it. The author doubtless assumes a familiarity with operative technique which is certainly not possessed by most medical men in this country. Intracranial abscess is dealt with in a much less convincing fashion, and in the account of the surgical affections of the cranial nerves and the spinal cord the author returns to the style he adopts with cerebral injuries, and the result is too indefinite to be of much use to the student. The same criticism applies to the chapters on pain and on the autonomic nervous system, for theoretical considerations have usurped the place of practical teaching based on experience.

The clarity with which Professor Davis states his view on the diagnosis, treatment, and prognosis of peripheral nerve injuries is exemplary, and when the rest of the work has been altered to conform more closely to the standard of this chapter the book will stand a far better chance of achieving its object.

FRENCH PAEDIATRICS

The latest, and from a hint dropped in the preface what appears to be the concluding volume of the series on clinical paediatrics, by Professor P. NOBÉCOURT, deals with Disturbances of Growth, of Puberty, of Nutrition, and of the Endocrine Glands.[2] It is actually the thirteenth number of the series, and it maintains the same essentially clinical outlook of preceding volumes. The fact that each chapter is in effect a clinical lecture must be taken into consideration, but the "course" is well planned and the author introduces carefully selected statistics and laboratory material to support his clinical cases. These latter are excellently described in that graphic style for which the French school is famous and of which Professor Nobécourt is a great exponent. From his "Voici Georges . . ." to the end of the description the facts are skilfully marshalled, and in the published version illustrations are profusely used as a substitute for the living subject. It is an excellent plan to discuss disorders of nutrition as a whole so that growth, pathological and physiological, can be studied side by side with the problems of wasting. The index is better than those often serving this purpose in French medical publications.

In Practical Paediatrics[3] Dr. E. TERRIEN has produced a modest volume on alphabetical lines in which the subjects range from "abscess of lung" to "xanthomatosis." The individual articles vary in length and in value, but treatment is kept well in the foreground.

DISEASES OF THE EYE

A textbook on the eye and its diseases[4] running to over twelve hundred pages and containing articles by eighty-two contributors is no everyday event. Its extent and scope challenge comparison with the older edition of Fuchs's classical volume, and it is by this very high standard that the book has to be judged. It may be said at once that, admirable as some sections are, the book does not come up to the standard it challenges. Some chapters, such as the one by Mr. Basil Graves on the cornea, are decidedly an improvement on Fuchs, not only in modernity of outlook but also in detailed presentation. Others fail by any standard—particularly is this the case with some of the chapters contributed by men with international reputations. The student who will look for clear teaching on refractive errors will be disappointed.

Perhaps the most serious criticism of the book taken as a whole is its lack of a modern outlook. Some of the most significant advances of late years have been made in the field of heredity, yet this new outlook hardly penetrates the text at large and room is found for only two pages discussing the general principles. Apart from that the book bears too strongly the mark of its multiple authorship. Thus there is a great deal of repetition. Three pages of the chapter on the choroid are taken up with a discussion on sympathetic ophthalmia, in spite of the fact that a whole chapter of twelve pages is devoted to the subject in another part of the book. The chapters on general pathology and on the aetiology of eye diseases by different contributors are largely repetition of each other, though each chapter in itself is well done. The lack of unity is also illustrated by the chapter on glaucoma, which has many a kind word for cyclodialysis, but this operation is dismissed as of no consequence in the section on the operative treatment of glaucoma, for which another contributor was responsible. These are not isolated defects: they are characteristic of the whole structure of the book, which, though it contains much that is useful, can only be regarded as the raw material out of which a valuable setting forth of present-day ophthalmology could have been achieved.

Obviously much care has been expended in the production of this volume; the pity is that it stopped too short. As the scope of the work is unique in existing English

[1] *Neurological Surgery.* By Loyal Davis, M.S., M.D., Ph.D., D.Sc.(Hon.). London: Henry Kimpton. 1936. (Pp. 429; 172 figures, 2 plates. 28s. net.)

[2] *Clinique Médicale des Enfants. Troubles de la Croissance, de la Puberté, de la Nutrition, et des Glandes Endocrines.* By P. Nobécourt. Paris: Masson et Cie. 1936. (Pp. 460; 218 figures. 60 fr.)

[3] *Pédiatrie Pratique. Répertoire de Mises au Point.* By Eugène Terrien. Paris: Masson et Cie. 1936. (Pp. 247. 24 fr.)

[4] *The Eye and its Diseases.* By Eighty-two International Authorities. Edited by Conrad Berens, M.D. Philadelphia and London: W. B. Saunders Company. 1936. (Pp. 1,254; 436 illustrations, some in colours. 50s. net.)

ophthalmic literature, a second edition is almost inevitable. It is to be hoped that ruthless cutting down of personal idiosyncrasies, of irritating duplications which are responsible for many an unnecessary page, and of pointless personal references will be carried out in the second edition. The grandiose manner and the grand style are not synonymous.

ELECTROTECHNICS IN RELATION TO MEDICINE

At a time when physical medicine is penetrating therapeutics in all countries the appearance of books that enable practitioners to ground themselves accurately on the technical or physical side of this work is particularly welcome. Dr. HANS WEISZ[5] presents in an orderly and simple way elementary physical facts connected with resistances, lines of force, condensers, and so on without complicating his explanations by suddenly diving into abstruse mathematical data. He has evidently kept clearly before him the fact that the reader he wishes to reach is the medical practitioner who wants to take up electrotherapeutics as a post-graduate study. The task of presenting a difficult and now intensely complicated subject such as electricity to any individual who has laid aside his school books for many years is full of pitfalls, and the majority of these Dr. Weisz has successfully avoided. His diagrams are simple and his similes are clear and appeal to the imagination. There is just one part of this otherwise excellent little book that is somewhat inconsistent and seems to break into its real purpose, and this is the introduction in the last few pages of paragraphs on treatment and dosage.

Medical practitioners taking up physical medicine as a special branch of work will be greatly helped if they can read German books on the subject, and as the language of Dr. Weisz's book is simple it can be recommended as a means of obtaining a first grounding in electrotechnics in relation to medicine.

ANNUAL REVIEW OF BIOCHEMISTRY

The annual production of a survey covering practically the whole field of the rapidly expanding subject of biochemistry is a labour that must tax the editors to the uttermost.[6] It is the first duty of any reviewer to congratulate them in the warmest terms on the manner in which, year by year, they accomplish a task of ever-increasing difficulty.

The individual articles deal with work which has been done in the preceding twelve months, and are of interest primarily to the specialized workers in the several fields which they cover. It is impossible in the space of some five thousand words to handle a subject in a historical manner; all that can be done is to recount, and as far as may be to correlate, the most important advances made in the period under review. These are striking enough. The chapter on biological oxidations and reductions recounts the recent work of the Warburg school on the co-ferment system and the attempts now being made to correlate the activity of the different cell-oxidizing systems with different substrates. Work of this kind may in the future enable us to picture the dynamics of the cell with a clarity far greater than we have ever dreamed of before.

Hardly less impressive is the rapidity of the advance in our knowledge of the chemical changes underlying muscle activity and the alcoholic fermentation of yeast, both of them examples of the manner in which the cell uses carbohydrate, and each apparently closely related to the other. For most of this work the schools of Parnas in Lwów and Meyerhof in Heidelberg have together been responsible.

One of the most striking developments of recent years has been the study of molecular structure by means of *x* rays. The method has now been adapted to the examination of such biological substances as proteins and carbohydrates. It enables us at last to form a clear picture of the actual shape and arrangement of these gigantic molecules, and thus profoundly influences our conception of such processes as enzyme action. For the first time "*x*-ray studies" forms the subject of a separate article.

To mention here even the salient features of all the articles would be impossible; nor does the reviewer claim in this brief notice to have named even the most important ones. He can repeat only that each holds a special interest for those working in the field with which it deals and in others upon which it impinges. For the first time a review has appeared on "Clinical Applications of Biochemistry." He is bold who would attempt to define what parts of the subject do or do not have a clinical application: the authors of the article in question have wisely decided to confine themselves to a discussion of a small part of the field—namely the metabolism of calcium, particularly in its relation to the effects of vitamins and hormones. From some points of view it would be an advantage if the editors could see their way to expanding this particular section, either by including more than one review in each volume or by allowing the contributors a rather greater latitude in respect of the length of their article.

X-RAY MARTYRS

Dr. PERCY BROWN, a former president of the American Roentgen Ray Society, has opened up a new field in collective biography. He gives short biographical notices of *American Martyrs to Science through the Roentgen Rays*.[7] Unfortunately they are numerous, but as they have all died within the last thirty years it has been possible to obtain not only authentic details of their lives but very excellent photographs of the individuals, for all were interested in photography even before they became skilled in the use of *x* rays. The book is written sympathetically, and is free from sentiment. The men are shown as devoted to their work, often well aware of the risks they ran but willing to incur them at the cost of pain, disablement, and a lingering death. Physicists early pointed out the dangers of prolonged exposure to rays emanating from Crookes's tubes. But their warnings were not heeded, and the skin affections were attributed to the chemicals used in developing the plates rather than to the rays themselves. The number of martyrs was perhaps greater in the United States than in Great Britain. It appears to have been the custom for the early radiographers to go round the country demonstrating the skiagraphs on their own persons to all and sundry as a kind of show. In hospitals and laboratories it was thought necessary for the doctor to stand near the patient to give him confidence, and this at a time when the exposure was prolonged and there was no thought of protection for either patient or operator. Such conditions did not arise in England, where curiosity was less and people were not so "highly strung."

[5] *Die physikalischen und technischen Grundlagen der Hochfrequenzbehandlung. Diathermie—Arsonvalisation—Kurzwellen.* By Dr. Med. et Phil. Hans Weisz. Vienna: J. Springer. (Pp. 76; 36 figures. RM. 3.90.)

[6] *Annual Review of Biochemistry.* Edited by James Murray Luck. Vol. v. California: Stanford University; London: H. K. Lewis and Co. Ltd. 1936. (Pp. 640. 5 dollars.)

[7] *American Martyrs to Science through the Roentgen Rays.* By Percy Brown, M.D., F.A.C.P., F.A.C.R. Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1936. (Pp. 276; 55 figures. 16s.)

It is pleasant to think that martyrs to *x* rays will become fewer and fewer now that the cause is known and can be adequately provided against. There was a time when diphtheria martyrs were numerous. Brilliant house-surgeons too often sacrificed their lives by sucking the membrane out of blocked tracheotomy tubes, ignoring or not knowing that diphtheria was acutely infectious. Such self-sacrifice is now almost a thing of the past.

Dr. Percy Brown's book will be useful to many. It gives an account of the methods by which the use of *x* rays was disseminated in the United States and how it arrived at its present scientific position. Many of the articles have bibliographies attached. There is a glossary for the use of lay readers, an index of names, and, as is usual with books published by the firm of Charles C. Thomas, some bibliographic details about the manufacture of the book.

Notes on Books

The Intruder[8] is a biographical study written from an original point of view. The author, Mr. KENNETH WALKER, is a London surgeon who has also practised in Buenos Aires, wandered in Iceland, Kenya, and India, and served for four years in France under unusually interesting conditions. Mr. Walker regards his own personality as a stage, dominated at different times by a variety of actors. Each conflicting character temporarily monopolizes the limelight and controls the play. For the sake of simplicity the author has reduced the cast to four, each personifying certain traits which had appealed to his imaginative boyhood. Black Hawk, the Indian brave, typifies stoicism; Selous, the hunter, stands for adventure and drive; Knight-Paton, a composite figure blended from mediaeval chivalry and a Scottish medical missionary (who met his end in a Marquesan cooking-pot), represents the self-sacrificing spirit of the crusader; and finally the Personage connotes conventional ambition. With remarkable skill Mr. Walker has shown how the temporary ascendancy of one or other of these characters has deflected in different directions the current of his life. Selous sent him to Iceland and Kenya, the Personage to Buenos Aires; Knight-Paton impelled him to surrender a lucrative practice at the outbreak of the war. The role of Black Hawk was more passive, sustaining the Scottish capacity for endurance when uncongenial work or surroundings had to be faced. Why, then, is this book called *The Intruder*? The author has applied this name to truth. He describes how on rare occasions, on the Sussex Downs, before the beauty of the Taj Mahal, or flying amongst the clouds over the Somme battlefield, his spirit has climbed into that rarefied atmosphere, frequently attained by the ascetics of the East, though seldom discernible in the material life of the West, where existence is viewed in its true proportions. When the Intruder sweeps across the stage the play becomes unreal, the actors puppets. Within this psychological framework Mr. Walker recalls, often with cynical humour, the varied incidents of an interesting and useful life. The result is an arresting book.

[8] *The Intruder. An Unfinished Self-Portrait.* By Kenneth Walker. London: Lovat Dickson. 1936. (Pp. 274. 9s. net.)

An Introduction to Materia Medica and Pharmacology,[9] by Professor H. A. MCGUIGAN and Miss EDITH P. BRODIE, is stated to be the outcome of an attempt to revise Brodie's *Materia Medica for Nurses*. Examination of the text shows that the book provides an introduction to modern views of materia medica, which is well adapted for the needs of nurses. The authors have also endeavoured to provide the student with some idea of modern pharmacological methods by means of a lavish use of illustrations, and the volume contains seventy-one figures and eighteen coloured plates. Most of the figures and the plates are borrowed from well-known textbooks of physiology and pharmacology. In particular, a large number of the excellent figures and diagrams contained in Jackson's *Experimental Pharmacology* are reproduced.

[9] *An Introduction to Materia Medica and Pharmacology.* By Hugh Alister McGuigan, Ph.D., M.D., and Edith P. Brodie, A.B., R.N. London: H. Kimpton. 1936. (Pp. 580; 71 figures, 18 coloured plates. 12s. 6d. net.)

Preparations and Appliances

MODIFIED GRAFT-CUTTING RAZOR

Mr. GRAHAM HUMBY (Guy's Hospital) writes:

May I bring to your notice a simpler modification of the graft-cutting razor that I described two years ago (*Journal*, 1934, i, 1078). It is used in the ordinary way, a piece of wood in the left hand keeping the skin taut and the assistant retracting the skin distally. Two screws on the upper surface control the thickness of the graft, and the roller smooths out the skin in front of the cutting edge. The width of the graft is determined by the pressure on the knife. In order to sharpen the knife the roller is removed and the blade wiped over with an Arkansas stone slip, which gives it the necessary amount of saw edge for cutting skin. If kept sharp the knife will cut any thickness or width of graft in the hands of an inexperienced operator.

CURETTE FOR ADENOIDS

Mr. NORMAN PATTERSON (London, W.) writes:

With a large curette, however thoroughly it is used, it is impossible to remove all adenoid tissue from the nasopharynx. Owing to the depth of the blade remnants are left, especially in the region just behind the choanal orifices. The instrument here shown is a specially shaped ring knife on a bent shaft. After the removal of the main mass of adenoids with an ordinary curette this instrument can be introduced into the posterior part of the nasal cavity, first on one side and then on the other, and with a few gentle sweeps the last traces of the most anterior portions of lymphoid tissue can be cleared away. The instrument is also very useful in removing adenoid masses situated laterally in the neighbourhood of the Eustachian cushions.

This instrument is obtainable from Messrs. Mayer and Phelps, 59, New Cavendish Street, W.1.

British Medical Journal

SATURDAY, NOVEMBER 28th, 1936

GASTRIC SYPHILIS

Syphilis of the stomach was formerly regarded as excessively rare. It was usually diagnosed post mortem when associated with gummata of the liver. Many more cases have been seen and described after necropsy than have been diagnosed and reported during life, though some of the clinicians at the beginning of the century claimed that 5 to 10 per cent. of chronic gastric ulcers were of syphilitic origin. In this country the consensus of opinion among pathologists has been that the disease is extremely rare. McNee in 1922 described a case of gummatous ulceration of the stomach in which for the first time spirochaetes were demonstrated in an actively developing part of the lesion. On the Continent and in America routine combined serological and *x*-ray examination of patients with digestive disturbances has led to the disclosure of gastric lesions of syphilitic origin and a better knowledge of their incidence in the living subject. Two authors from Warsaw, Drs. Landau and Held, have recently brought together in a monograph the present-day attitude of medical opinion on the subject.[1] They point out that different criteria are demanded by different workers before making a diagnosis of gastric syphilis. For some the beneficent result of anti-syphilitic treatment is sufficient proof ; for others the diagnosis must be substantiated by the results of biopsy and necropsy. It may be admitted that some cases of gastric syphilis remain unrecognized until a catastrophe or the good result of specific treatment, begun for other reasons, puts an end to the patient's gastric symptoms. But if gastric syphilis is present more often than it is diagnosed it would be wrong to attribute to syphilis itself every gastric disturbance or lesion in a syphilitic.

Landau and Held have made a study of 105 cases. They divide all syphilitic affections of the stomach into two main groups: (1) organic, in which syphilitic lesions can be demonstrated directly or indirectly, namely, (*a*) gastritis, (*b*) syphilitic ulcers, (*c*) gummata, (*d*) fibrosis and cirrhosis of the stomach (linitis plastica), (*e*) deformations and plications, the result of perigastric adhesions ; and (2) functional, in which the syphilitic lesions occur in other organs (liver, aorta, vertebrae, or nervous system), but the patients localize all their symptoms in the stomach, and these symptoms completely dominate the clinical picture. In regard to gastritis the authors found in about 60 per cent. of their cases defective secretory function of the gastric mucous membrane—either deficient secretion of hydrochloric acid or of neutral red injected intramuscularly—or the presence of mucus and leucocytes, or the extreme tendency to haemorrhages. Radiology may fail to show anything but thickening of the mucous membrane folds or sluggish motility of the stomach ; while subjective symptoms may be absent, in spite of atrophy of the gastric mucous membrane. The diagnosis of syphilitic gastritis ought only to be made after excluding other forms of gastric syphilis, and it should be understood that gastritis usually accompanies syphilitic ulcer, linitis plastica, and gummata of the stomach. The secretory function of the gastric mucous membrane in cases of gastritis may be restored after efficient anti-syphilitic measures when ordinary treatment with diet and drugs does no good.

A simple peptic ulcer may of course occur in a syphilitic subject, a mere coincidence which is without significance in these two common complaints. A syphilitic endarteritis may conduce to ulceration which differs little microscopically or macroscopically from an ordinary peptic ulcer. A true syphilitic ulcer is characterized by gummatous surroundings and infiltration, is often multiple, usually on the greater border of the stomach, oval or irregular, and on the *x*-ray screen it presents many similarities to malignant ulceration. Owing to thickening of the vessels, there may be no haemorrhage, but when this occurs it is abundant. Treatment with specific remedies often results in remarkable improvement. Much rarer but much more difficult to diagnose is the pseudo-neoplastic form of gastric syphilis, whether of a hypertrophic type or the atrophic form for which the term linitis plastica is used.

In the authors' series men were twice as often affected as women ; even greater proportions, up to 4 : 1, are cited in the literature. A positive Bordet-Wassermann reaction and specific lesions in other organs are no assurance that the lesion is syphilitic. The demonstration of *Treponema pallidum* in sections is exceptional ; severe haemorrhages may occur from varices of the lower end of the oesophagus in specific liver disease, so that there are no pathognomonic signs of syphilis of the stomach. Nevertheless certain signs are suspicious. The patient's general condition may be relatively good in spite of advanced local lesions in the stomach of long duration ; there may be slight reduction, if any, of haemoglobin and red blood corpuscles, notwithstanding general asthenia, loss of weight, and gross deformation of the stomach as viewed with *x* rays ; pain is not so constant and does not so affect the appetite ; occult blood is usually absent from the stools. Amelioration, subjective and objective, under the influence of specific treatment is a sign of great value ; syphilitic gastritis is healed with remarkable rapidity ; where there are deformities of the stomach the response to treatment depends on the anatomical condition and its duration, but all respond more or less.

The last group of cases dealt with by Landau and Held cannot properly be called gastric syphilis. These are affections of the stomach always of syphilitic origin, but secondary, arising from a source outside the

[1] *La Syphilis Gastrique*. By Anastase Landau and Joseph Held. Paris: Masson et Cie. 1936. (32 fr.)

stomach, usually in the nervous system. The syndrome which draws attention to the stomach consists of violent epigastric pains and vomiting, without organic lesion of the stomach. Of the authors' own fifty-four cases of nervous syphilis with gastric symptoms the greater number were cases of tabes ; others presented symptoms of cerebral syphilis, and a few showed root affections. The signs may involve the sensory, secretory, or motor functions of the stomach. Gastric crises are characterized by their periodic occurrence in apparent health, the suddenness and unexpectedness of their onset and ending, and the violent nature of the pain accompanied by uncontrollable vomiting, during which the patient is unable to eat or drink ; a severe collapse generally follows, with feeble, rapid pulse, and all without rigidity of the muscle wall or tenderness, but with the usual signs of tabes. Of 130 cases observed with tabes thirty-two had typical gastric crises. But these gastric crises may be associated with true gastric ulcer, which may be demonstrated by *x* rays. The treatment of these gastric crises is difficult. Some respond well to iodides ; morphine has but a temporary effect, and there is the grave risk of habit formation ; analgesics are of service, and so are anaesthetic injections to the roots of the fifth to ninth thoracic nerves ; while all the specific remedies (mercury, bismuth, arsenic) should be pushed. As in all forms of syphilis, early diagnosis and early institution of treatment are rewarded by a higher incidence of relief and cure.

INTERNATIONAL COMPARABILITY OF MEDICAL STATISTICS

From the beginning of medical statistics with John Graunt the attention of statisticians has been directed to the need for securing comparability. John Graunt, noting that rickets did not figure in the Bills of Mortality before 1634, asked himself " whether that disease did first appear about that time, or whether a disease which had been long before did then first receive its name," and investigated the matter with his customary shrewdness. More than 150 years later, when William Farr began to lay the foundation of modern medical statistics, he had to consider the questions of nomenclature and classification, matters which he in turn treated with shrewd common sense. These questions, often confused, are distinct. What nomenclature shall be recommended to the attention of medical practitioners for use in certification must depend upon the state of clinical opinion and the level of medical education. Under what headings the results should be grouped for statistical purposes depends upon other considerations. Of course the two problems are not independent: upon the detailed accuracy of the individual certifications the value of tabulations must depend. But even with perfect accuracy of certification the number of separate headings it is expedient to retain in tabulation is a question which may be answered differently by different persons. This happens when one considers an intranational system, and when some international classification is proposed differences of opinion are still frequent. It has been the practice for some time to revise the international list of causes of death every ten years, and the new lists will be prepared in 1939. Preliminary work has already begun, and the Health Section of the League of Nations recently issued an extensive analysis[1] of the use made of the current international lists (full, intermediate, and abridged) by different countries of the world. The population of the countries considered exceeds 631 millions, and 95 per cent. of this population are covered by some international list ; 83.7 per cent. are covered by one of the 1929 lists, and 68.5 per cent. by the detailed list.

These figures are cheering as indications of a wide field of comparability. The modern student of comparative epidemiology or group pathology has materials which would have excited the admiration of Farr, and we have good reason to expect that the next international revision will extend the field of comparability. At the same time we must bear in mind a homely German proverb to the effect that victuals are never eaten so hot as they are cooked. In these days of exacerbated nationalism one must avoid the most distant reference to any individual case and do no more than suggest that the adoption or even the use (which is not necessarily the same thing) of a detailed international list is not a complete guarantee of the value of a nation's medical statistics. It is still necessary to compare mortality rates for named causes of death in a critical spirit before we conclude that disease *a* is really twice as fatal in country A as in country B. Three data are of fundamental importance: the proportion of deaths actually certified by qualified medical practitioners ; the views of practitioners on the ethical question of professional secrecy ; the degree to which a certificate is a confidential document. Of course, the two latter questions are intimately related.

These obvious difficulties do not, however, much weaken the conclusion that great progress has been made. Indeed, it is probable that international discussions of such matters are the most fruitful of interchanges of opinion. Our national vital-statistical record is a glorious one, and the medical profession of this country will look forward to the next revision of international lists with interest and approval.

FOOD VALUES AND COOKING

The time will come when the chemist will tell us the exact composition of our foodstuffs in respect of every component of physiological significance. Such information is rapidly being collected. The report[2] on the nutritive value of fruits, vegetables, and nuts by R. A. McCance, E. M. Widdowson, and L. R. B. Shackleton, following one from the same laboratory on the chemistry of flesh foods and their losses in cooking, makes a most valuable contribution to the subject. Practically every kind of fruit, vegetable, or nut which is eaten in the British Isles has been analysed. The

[1] R.E. 182. Epidemiological Report No. 4-6, 1936.
[2] Medical Research Council, Special Report Series, No. 213. London: H.M. Stationery Office. 1936. (2s. net.)

tables of results indicate the sources from which the samples were obtained, the nature and comparative magnitudes of the edible portion and the waste, the titratable acidity, the amounts of water, available and unavailable carbohydrate, sugar, starch, protein, fat (in the case of nuts), and the chief mineral elements, including copper. Fruits and nuts were analysed raw, and those vegetables which are often eaten raw were also analysed in that condition. Vegetables which are usually cooked for the table were either boiled or fried before analysis, and in such cases the length of time of cooking is stated. Many interesting points emerging from the analyses are discussed by the authors. It is noted, for example, that the acidity of ripe and unripe gooseberries is the same ; that the amount of roughage in green leafy vegetables is quite small ; and that many kinds of nuts are extremely rich in calcium, magnesium, and phosphorus, though a large proportion of these elements is present in the form of phytin, the phosphorus in which at least is largely unavailable for human nutrition. A special section of the report deals with changes in the chemical composition brought about by cooking. As a rule vegetables do not change much in weight when cooked in steam or water at 100° C. Such losses as arise concern chiefly sugars, water, and mineral salts. The wastage varies directly with the time of cooking and inversely with the size of the portions being cooked. The volume of water used in boiling vegetables has no great effect on the losses, nor does the addition of alkali to the cooking water. The waste from throwing away the water in which vegetables have been boiled was found to be surprisingly small, and it was estimated that conservative methods of cooking would be unlikely to increase the total intake of calcium, phosphorus, and iron in a mixed diet by more than 3 per cent. Some common methods of cooking bring about an increase in the constituents of vegetable foods. Thus potatoes took up considerable quantities of both sodium and chloride when they were boiled in a 2 per cent. solution of common salt. Brussels sprouts gained appreciable amounts of sodium when cooked in a dilute solution of sodium bicarbonate. Potatoes absorb fat during the process of frying, the amount depending on the surface exposed to the fat. The calorie value of 100 grams of potatoes increased from 99 to 300 as the result of being fried in the form of chips at 200° C.

MORTALITY IN 1935

The volume of Medical Tables forming Part I of the Registrar-General's Statistical Review of England and Wales for the year 1935[1] might be succinctly described as a statement of new low records. The age standardized rate of mortality on males, 10.2 per 1,000, is the lowest ever recorded, and at every age under 75 the rate is the lowest recorded. The standardized rate on females was 8, also the lowest ever recorded, and, again, at all ages under 75 the rates are lower than in any previous year. Turning to the most important specific causes, we find that all the acute infectious diseases except influenza had lower rates than in 1934. The age standardized rates for measles, for instance, declined from 151 to 54 per million living for males and from 139 to 52 for females. Mortality from all forms of tuberculosis declined from 832 to 774 for males and from 657 to 610 for females. The only two large items failing to show improvement were cancer and heart diseases. In cancer there was a slight increase for males, from 1,046 to 1,058 ; a slight decrease for females, from 974 to 959. Heart diseases showed slight increases for both sexes, from 1,897 to 1,949 for males and from 1,565 to 1,597 for females. Puerperal mortality declined sharply, from 4.41 per 1,000 births to 3.94, but this latter figure differs inappreciably from the rate in 1931, which was 3.95. Infant mortality per 1,000 live births decreased from 58.59 to 56.94. Extended comment upon the data may well be postponed until the issue of the text volume, but a mere glance at these tables is enough to convince anyone of the astounding changes which have occurred within the last forty years. The change in infant mortality is known to all, but let us take a time of life when, as it would seem, the "obvious" hygienic influences are less important than in infancy—say, the age group 55–65 years, when the vital powers are waning. In 1895 the rate of mortality in this age group was 34.9 per 1,000 for males and in 1935 23.2. For females the rate in 1895 was 29.6 per 1,000 and in 1935 16.2. When anyone is tempted to look back upon the 'nineties as the end of a golden economic age and to think of our time, with its millions of unemployed, with pessimism, he should remember these things.

[1] H.M. Stationery Office. (6s.)

THE NATURE OF INFLAMMATION

The sequence of events in an area of inflammation has been described in textbooks in much the same terms for many years. So complex and so fundamental a process, of which the features and outcome vary widely in different infections, is not likely to be as fully understood as the orthodox description of it suggests, and recent studies, which are now very ably reviewed by Rich,[1] have not only answered certain questions but posed still more. Successful resistance to infection appears to depend on three factors—the mechanical, the phagocytic, and the humoral. The particular insistence on the first of these by Menkin, who paints a picture of bacteria whose way is barred by a network of fibrin and by fibrinous thrombi in lymphatics, is disputed by Rich, who attributes immobilization rather to the action of agglutinin. Clumps of bacteria so formed may die as the result of changes in the inflammatory exudate which simply render it an unsuitable medium for growth. But, apart from this possibility, Rich stresses the supremity of phagocytosis as an immunity mechanism. The fully immune animal deprived of leucocytes becomes powerless to stem the spread of infection, and may even succumb to the attack of bacteria to which normally it possesses natural immunity —that this is the experimental counterpart of agranulocytic angina is obvious. There is thus no fixed tissue immunity or mechanism of defence other than the cooperation of antibody and phagocyte, such as has sometimes been postulated. The lymphocyte and its functions are thought to be a mystery, though certain evidence points to this cell or its derivatives being responsible for the formation of antibodies. While nonacceptance of the hypothesis that lymphocytes are precursors of the macrophage will not meet with general

[1] *Arch. Path.*, 1936, xxii, 228.

approval, we must be grateful for the description of the lymphocytes surrounding an inflammatory focus as "phlegmatic spectators passively watching the turbulent activities of the phagocytes." This stimulating survey ends with an emphatic restatement of the view supported by many of Rich's own experiments—that allergy is not a necessary accompaniment of immunity, either in tuberculosis or in any other infection. The hypersensitive and immune animal can be desensitized without loss of immunity; the normal animal can be immunized without the production of hypersensitiveness; and immunity can be passively transferred without transference of accompanying hypersensitiveness. A violent inflammatory response is not a manifestation of a high degree of immunity: this state is characterized rather by the capacity to dispose of the invader with a minimum of disturbance. These are categorical statements, and the mechanism with which they are concerned underlies a good deal of everyday clinical medicine. The first of them at least has been proved experimentally to be true of infection by five different bacteria, including the tubercle bacillus. If those who employ the abused word allergy rather light-heartedly and loosely will ask themselves how far their belief and experience can be reconciled with the doctrines proposed by Rich, they may at least come to understand the limitations of their own knowledge. What is more important, if these propositions are true, and if the presumably different processes by which the hypersensitive as distinct from the purely immune condition is produced can be distinguished, we may be nearer to a full understanding of several major diseases, among which some would include rheumatic fever, diffuse glomerulonephritis, and even lobar pneumonia.

PLAGUE-INFECTED ANIMALS IN SOUTH AFRICA

The last annual report of the South African Institute for Medical Research, Johannesburg, records activities covering a wide and varied field. The health of native employees on the Rand, many of them recruited from tropical regions, constitutes a major economic problem in South Africa. Two thousand of these, employed at the Witwatersrand goldfields, were inoculated with a mixed vaccine against pneumonia and allied acute respiratory diseases. After the lapse of a year the results of this prophylactic immunization have proved satisfactory, and the same treatment will be applied to a further batch of three thousand labourers from tropical Africa. With regard to plague the main reservoir of infection to South Africa is the open veld. Similar conditions occur in the Saratov district of South-Eastern Russia, where the principal hosts are a ground squirrel and a small rodent analogous to the South African gerbille. A representative of the Institute visited Russia with a view to pooling experiences. Although infected rats had been conspicuously absent in South Africa for a considerable period, ten black rats were found to be infected during the year under review. This suggests a spread of infection into a zone dangerously near to towns and villages, where domestic rodents mingle with the animals of the veld. Other animals examined for plague were eleven cats, one bat, one skunk, and two yellow mongooses. Of these, two cats were found to be infected. It is, however, thought probable that cats often die from a surfeit of plague-infected rodents, possibly due to toxaemia, without themselves being definitely infected. The same applies to such wild carnivores as the suricate and the yellow mongoose. The total number of rodents examined for plague was 2,026, of which fifty-one were found to be infected, while *B. pestis* infection was confirmed in seventy-two out of 158 suspected cases in man.

THE RAYNAUD PHENOMENON

Some seventy years ago Raynaud described certain circulatory changes in the extremities in a series of cases, and since then it has been customary to make a loose diagnosis of Raynaud's disease when any patient showed these changes. Recognition of these phenomena does not, however, constitute a diagnosis; they are merely symptomatic of a wide variety of disorders. The clinical picture of intermittent pallor or cyanosis of the extremities precipitated by exposure to cold, without clinical evidence of blockage of the large peripheral vessels and with nutritional disturbances, if present, limited to the skin, was Raynaud's definition of the syndrome which bears his name; yet of his thirty-one cases only one actually fulfilled these conditions. If Raynaud's definition is strictly applied most of the cases with attacks of peripheral circulatory disturbance will not come under this heading, but to the changes apparent in the attack the term "Raynaud phenomenon" may be applied. Dr. J. H. Hunt has recently contributed a useful review[1] of the conditions in which the Raynaud phenomenon occurs; this should serve to clarify views which, as the author shows, have long been extremely muddled. Inasmuch as Raynaud's cases showed a variety of disorders, some would abolish the term "Raynaud's disease" altogether; but as it is too well established to be abandoned it is suggested that the term be reserved for one particular type of case. Such a case is nearly always observed in the female, the onset of the attacks being after puberty and not after middle age, and the attacks nearly always affecting the limbs symmetrically. Since signs which exclude the diagnosis of Raynaud's disease thus defined may not appear until after the attacks have been recurring for some time, Allen and Brown consider that a period of two years must elapse before a definite diagnosis can be made. The condition satisfying these criteria is a rare one, and Dr. Hunt has been able, after examining the English and American literature, to admit the diagnosis in only thirty cases in over 500 publications. The numerous conditions in which the Raynaud phenomenon appears are dealt with separately, and it is shown by reports quoted from Raynaud's theses that many of these occurred in his original cases. The mechanism of the phenomenon is discussed, and a summary is given of Sir Thomas Lewis's researches on the condition which led him to the conclusion that a local fault in the digital arteries is concerned. On this view there is no abnormality in the nervous mechanism of the vessels, and the relief sometimes obtained by operations on the sympathetic nervous system result from the removal of the normal vasomotor tone, thus raising the threshold of the vessels to cold and other stimuli. The indications for

[1] *Quart. Journ. Med.*, July, 1936, p. 399.

sympathetic ganglionectomy are discussed, and it is asserted that in only two conditions is it of real value—namely, Raynaud's disease and sclerodactyly. Some of the unfavourable effects of the operation are mentioned, and these should deter surgeons from too lightly embarking upon it. Moreover, in no case can it be considered curative. Some observations upon the effects of prolonged cooling of the body, for which the author was himself heroically the subject, are described, and the paper as a whole shows how recent advances in the knowledge of the physiology and physiopathology of the smaller peripheral blood vessels, due in large part to Lewis's work, are revolutionizing our clinical conceptions of abnormalities of the peripheral circulation.

THE CANCER CAMPAIGN

The annual general meeting of the British Empire Cancer Campaign was held at the House of Lords on Monday. The Duke of York, as president, took the chair, and in the course of his address announced that King Edward VIII had honoured the Campaign by becoming its patron in succession to King George V. The results of the national Empire Day appeal had enabled their financial advisers to meet every request made by the scientific committees, but the margin of income over expenditure was small. Steps were being taken to bring about further collaboration between headquarters in London and the branches of the Campaign at home and in the Dominions which had their own research centres. In conclusion, the Duke offered warm congratulations to Professors E. L. Kennaway and J. W. Cook on being awarded the prize at the recent International Cancer Conference in Brussels for the most meritorious work in research on malignant disease. Lord Dawson of Penn, in conveying the thanks of the meeting to the president, said that there was a promise of closer co-operation in the near future between the Campaign and the Imperial Cancer Research Fund. An account of the meeting and of the annual report will appear in our next issue.

THE LEAGUE OF NATIONS AND DANGEROUS DRUGS

Many important aspects of the control of the commerce in dangerous drugs have been engaging the attention of the Advisory Committee of the League of Nations. While the legitimate consumption of narcotics, as measured by the national requirements furnished to the League, has in the last few years been progressively reduced, the extent of illicit traffic and the illegitimate consumption to which it panders continue with little, if any, reduction. The total quantity of morphine "licitly manufactured in the whole world" has fallen from 38,634 kilos in 1930 to 26,778 in 1934, of heroin from 4,088 kilos to 1,110, and of cocaine from 5,838 kilos to 3,472. On the other hand, it was reported that in China the total production of opium amounted to 12,261 metric tons, or over 90 per cent. of the world production. Moreover, it is stated that in 1933–4 some 1,637 tons of opium were smuggled into China, and that large quantities of Iranian opium were in 1933–4 exported from Bushire and consigned to China. There were long discussions at the Advisory Committee on the instructions given by both the Council and the Assembly of the League to summon a conference to consider the possibility of controlling and limiting the cultivation of the opium poppy and the coca plant, but, beyond dropping out the coca plant and further study in regard to control of poppy cultivation, little progress seems to have been made. Notwithstanding the facts reported by the representatives of Canada and the United States showing that codeine might be regarded as a drug of addiction, the matter was again referred to the Health Committee for further investigation. The work of the Advisory Committee and the Central Opium Board is hampered by the irregularity with which the majority of the Latin-American States furnish their annual reports, in spite of repeated appeals, and it was resolved to send an urgent request to these States "to give their indispensable contribution to the common cause."

LORD NUFFIELD'S GIFT INCREASED TO £2,000,000

Lord Nuffield's munificent offer of £1,250,000 for medical research at Oxford was announced in the *Journal* of October 24th, page 822. At a meeting of Congregation held on November 24th, and presided over by the Chancellor, Lord Halifax, a decree accepting with gratitude this latest and largest of Lord Nuffield's benefactions to the cause of medicine was proposed by the Vice-Chancellor, Mr. A. D. Lindsay, who quoted from Sir Farquhar Buzzard's Presidential Address to the British Medical Association last July, describing it as the immediate occasion of the offer. Speeches in support of the decree were made by Mr. W. M. Goodenough (who will act as chairman of the Board of Trustees), Sir Michael Sadler, Mr. G. R. Girdlestone, and Sir Farquhar Buzzard, regius professor of medicine. Lord Nuffield, after thanking the speakers, said that he now understood, through his secretary, that the sum he had given was not enough to produce the effect he anticipated. He wished therefore to increase his donation to £2,000,000: "I would hate to leave this building with the feeling that that scheme was not complete." The Chancellor briefly expressed the gratitude of all present for the "princely munificence of a donor in thus completing a gift already unexampled in magnitude." Needless to say, the decree was carried by acclamation.

The Bradshaw Lecture before the Royal College of Surgeons of England will be given on Thursday, December 3rd, at 5 p.m. by Mr. Hugh Lett. His subject is "The Early Diagnosis and the Treatment of Renal Tuberculosis."

The General Medical Council has re-elected Sir Norman Walker as its President for the period terminating with the November session, 1939. Section 9 of the Medical Act, 1886, provides that the Council shall elect one of its number to be President for a term not exceeding five years, and not extending beyond the expiration of the term for which he had been made a member of the Council. Sir Norman Walker was elected President in November, 1931, for five years, in succession to the late Sir Donald MacAlister.

THE ENDOCRINES IN THEORY AND PRACTICE

This article is one of a series on Endocrinology contributed by invitation

LABORATORY TESTS FOR THE EARLY DIAGNOSIS OF PREGNANCY

BY

F. A. E. CREW, M.D., D.Sc.

The widespread demand for a means of recognizing the existence of pregnancy in its very earliest stages has been successfully met. No fewer than 10,000 pregnancy diagnosis tests are being performed annually in Great Britain alone, and there is every reason to believe that as their usefulness becomes more generally known this number will increase. The routine tests now used are biological tests, but it is not improbable that these will give place later to chemical tests, and it is to this end that much research is being directed.

These biological tests demand the use of some experimental animal whose reactions will make it possible for the enormous increase in the quantities of certain hormones excreted in the urine during pregnancy to be detected and registered. From puberty to menopause oestrin and gonadotropic hormones are at all times being elaborated by the ovaries and anterior pituitary respectively, transported in the blood stream, and excreted by way of the urine and faeces. Oestrin is the general name given to a closely related group of hormones which, when administered to the test animal (usually a mature ovariectomized rat or mouse), provoke certain characteristic reactions normally associated with oestrus—for example, turgescence of the vaginal orifice, cornification of the vaginal mucosa, and distension of the uterus with fluid. The gonadotropic hormones are so called because they control the activities of the gonads, directing their growth, and the induction of those changes which normally are associated with sexual maturity—for example, follicular maturation, ovulation, and corpus luteum formation in the female, spermatogenesis and hypertrophy of the interstitial tissue in the male. The test animal here is either the immature individual (usually mouse or rabbit), in which, by reason of age, the ovary is still inactive, or else the adult animal, in which the gonad is known to be quiescent for the time being.

The amounts of oestrin and of gonadotropic hormones present in the blood, urine, and faeces vary from individual to individual, and from time to time. There is, for example, an increase at the time of the menstrual cycle. But such fluctuations in the non-pregnant woman are negligible when contrasted with the relatively enormous increase in hormone transportation and excretion during pregnancy. During the first few weeks following conception the amount of oestrin (some 300 to 600 mouse units per litre) elaborated by the maternal ovaries (and probably also by the placenta) is not so very much greater than that associated with the menses. It has been estimated that during one complete menstrual cycle in the "standard woman" some 800 to 1,500 mouse units are excreted in the urine. A mouse unit is that amount which is required, under standard conditions, to evoke the typical oestrous reactions in at least ten out of twenty mature ovariectomized mice. But after the eighth week of pregnancy the increase in oestrin excreted is exceedingly great and rapid, until many thousands of mouse units are passed daily. As pregnancy approaches its termination there can be as much as 20,000 mouse units a litre of urine. Towards the end of the first week of the puerperium this oestrin excretion has again reached its usual non-pregnant level. The increase in the amount of gonadotropic hormones excreted in the urine following conception is equally great, but is much more rapid; it reaches as much as 5,000 to 30,000 mouse units per litre in the first few weeks of pregnancy, and thereafter drops slowly and somewhat irregularly as pregnancy proceeds, to reach its non-pregnant level by about the third day of the puerperium.

Choice of Test

This difference between the times, in relation to conception, at which excretion in the urine of oestrin and of gonadotropic hormones respectively reaches its maximum is the deciding factor in the choice of a pregnancy diagnosis test. In the human female the maximum excretion of gonadotropic hormones in the urine is reached almost immediately following the implantation of the ovum, whereas that of oestrin is reached only after the second month of gestation. For this reason the popular test for human pregnancy is that which detects and reveals this immediate and enormous increase in the amounts of gonadotropic hormones excreted in the urine.

Conception is followed also by a very marked increase in the oestrin and gonadotropic hormone content of the blood, but it is to be noted that the maximum hormone content of the blood does not coincide in time with the maximum rate of excretion by way of the urine, for the amounts in the blood are at a minimum during the early stages of pregnancy, when excretion is at a maximum. This is a sufficient reason in itself for using urine rather than blood in these tests. After parturition, and also immediately subsequent to the death of the embryo *in utero*, the quantity of blood oestrin tumbles down with remarkable rapidity. This fact forms the basis of the blood-oestrin test for foetal death.

In the non-pregnant subject the gonadotropic hormones are of hypophyseal origin, but during pregnancy in the human female the pituitary contains no gonadotropic hormones whatsoever, whereas the placenta contains relatively enormous amounts—for example, 1,144 mouse units at the seventh week and 5,800 mouse units at term. For these and other reasons it has come to be generally accepted that the placenta is itself the site of gonadotropic hormone as well as of oestrin manufacture, and does not serve merely as a reservoir. That this is so is also strongly supported by the fact that the presence in the body of placenta-like tissue, such as a hydatidiform mole or a chorion epithelioma, is usually associated with the production and excretion of very large quantities of gonadotropic hormones, larger indeed than those that are found in ordinary pregnancy urine. This difference in the quantity of these hormones in pregnancy urine and in urine from cases of mole and chorion epithelioma respectively furnishes the basis for tests which distinguish between the two conditions, and which recognize the recrudescence of chorion epithelioma.

These gonadotropic substances present in the urine in cases of pregnancy and mole are not completely identical, in respect of the effects they produce in the test animal, with those of anterior pituitary origin. In both, the follicle maturation hormone (prolan A) and the luteinizing

hormone (prolan B) are present, but in the latter the follicle maturation factor predominates, whereas the gonadotropic hormones elaborated by chorionic tissue consist almost entirely of the luteinizing factor. For these reasons anterior pituitary extracts evoke growth and development of follicular granulosa and ova, luteinization of granulosa and theca, ovulation, and hyperaemia of follicles and corpora lutea ; whereas pregnancy urine, with its anterior-pituitary-like (A.P.L.) substances, yields but little follicle maturation, luteinization of the theca, atresia of follicles without ovulation, and hyperaemia of follicles and atretic corpora.

Variations in Biological Assays

Out of these facts and speculations the various biological tests for the early diagnosis of human pregnancy have been evolved. They differ among themselves in respect of the test animal, the method of preparation of the urine before injection, and the amount injected, but they are all tests for a significant increase in the amount of gonadotropic hormones excreted. The choice of the test animal is determined by several considerations. It must be such as can be readily obtainable locally at all times ; it must be in harmony with the general conditions of the place where it is to be used, in respect of accommodation, food, and husbandry ; it must be such as can receive reasonably large quantities of urine (or extract) in as short a time as possible, and be sufficiently delicate in its reactions thereto to give unequivocal results. The methods of preparation of the urine are many and various ; some workers inject native filtered early morning urine ; by others the urine is ridded of its urates, treated with hydrochloric and sulphosalicylic acid and/or washed with ether, in attempts to remove all traces of oestrin, to bring down all surplus proteins, and to render the urine as innocuous as possible. All these methods seem to be equally satisfactory in the hands of different people. The amount injected is determined, among other things, by the size of the animal, the degree of concentration of the urine, the site of the injection, and by the duration of the test. All other things being equal, the more gonadotropic hormones that pass into the circulation within a limited period of time the quicker will the gonads react and the sooner the result will be obtained. But whatever the amount, and whatever the site of the injection, a certain time must necessarily elapse before the ovarian reaction becomes sufficiently obvious and trustworthy.

The Aschheim-Zondek Test

The ordinary Aschheim-Zondek test requires batches of immature female mice, which are injected with small amounts (0.4 c.cm.) of prepared urine six times at regular intervals, and killed after 100 hours. Over a period of many years, and during the course of tens of thousands of instances, its results have been in disagreement with the clinical histories in not more than 1 per cent. of cases. If the concentration of the gonadotropic hormones in the injected urine is sufficiently high, as it is in pregnancy, a positive result is obtained, and in the ovaries white spots and blood spots are discernible to the naked eye. If the concentration of these hormones is not sufficiently high, as is the case if pregnancy does not exist, these ovarian changes will not have been induced and a negative result is recorded. Five days is, of course, a long time to wait, and so several tricks, intended to shorten the time required for the test, have been invented. For example, the urine can be injected into the tail vein of adult mice, which are subjected to red-light irradiation both before and during the test, when the time taken, it is claimed, can be reduced to forty-eight to fifty hours. Rats have been used instead of mice, and as much as 8 to 12 c.cm. of urine injected in a series of doses over a period of six to eight hours. It is claimed that a positive result, taking the form of intense hyperaemia and hypertrophy of the ovaries, can be obtained after thirty hours.

The Friedman Test

But in cases in which urgency is an important factor the Friedman is the better test. Sufficient experience has shown that it is no less trustworthy than is the Aschheim-Zondek. In this test, in which adult rabbits are used, the positive reaction consists in actual ovulation, a phenomenon which occurs normally only after mating or some equivalent excitation. For this reason the rabbits used must have been isolated for three weeks or more, and in order to make absolutely certain that the rabbit itself is not a source of error in a test in which medico-legal interests are involved, it is customary to perform a preliminary laparotomy before the injection is given in order that the ovaries themselves can be inspected.

A trustworthy positive result can be accepted within thirty hours of an injection of, say, 10 c.cm. of native filtered urine into the ear vein. It is because the test animals can differ among themselves in respect of their ability to react to the hormonic stimulus offered that more than one animal is employed in the Aschheim-Zondek and Friedman tests. The use of five animals in the former reduces to a minimum any error due to any individual idiosyncrasy ; in the case of the Friedman test it is usual to use two rabbits, each of which is injected. One of them is examined at the end of thirty hours—if the result is positive it can be accepted as being trustworthy ; if, on the other hand, there is no evidence of ovulation in its ovaries on inspection the second rabbit receives a further injection of 10 c.cm., and is examined thirty hours later. If this also gives a negative the result may be regarded as reliable. It has been claimed that an even more rapid and delicate reaction is obtained if the rabbits have been operated on previously, and one ovary, tube, and horn removed. It has also been reported that the reaction becomes much more definite if the injection is combined with maceration of the pineal. Further, it has been stated that the pupillary reaction of the rabbit to serum injected into the conjunctival sac immediately after the injection of the urine has given a high degree of accuracy in diagnosis.

The Brouha Test

A third test, the Brouha, takes advantage of the fact that these gonadotropic hormones can cause a definite enlargement of the seminal vesicles of the male mouse. A variant of this test employs the rat, in which the ratio of the weight of the vesicles in milligrams to the body weight in grams is constant. It has been shown that the increase in the size of the vesicles induced by injection of pregnancy urine or blood is proportionate to the concentration of the gonadotropic hormones. But since these tests require seven to ten days to complete, and possess no special advantages, they are not commonly used.

In other countries, and under other conditions, other test animals are to be preferred. Thus in South Africa the female claw-toed frog (*Xenopus laevis*), which is readily obtainable, would seem to be ideal. Two or three cubic centimetres of prepared pregnancy urine are injected intraperitoneally into each of six frogs. If the animals are kept at room temperature (18° C.) a positive reaction is indicated twelve to eighteen hours later by the extrusion of ova through the cloaca or by the presence of eggs in the oviducts. If the animals are kept at 27° C. this result can be obtained as soon as five to six hours after injection. This test has given a very high degree of accuracy, but since it has been found that the frogs to be

tested must not have been kept under laboratory conditions for more than a month their use becomes restricted to those countries where fresh supplies can be quickly secured at regular intervals.

The bitterling (*Rhodeus amarus*) has also been employed as a test animal. This small fish is easily obtainable, but its maintenance under laboratory conditions demands a certain skill. The female (not in breeding condition) has a minute oviducal tube projecting from its ventral surface. If 5 c.cm. of pregnancy urine is added to 2 litres of aquarium water, and if the test is positive, there is a lengthening of this tube by 100 to 300 per cent. within seventy-two to one hundred hours. If a concentrate of urine is used the result can be gained after twelve to fourteen hours.

Accuracy

In these pregnancy diagnosis tests 90 or 95 per cent. accuracy is not sufficient. Errors there must be, for the hormone concentration during early pregnancy is not the same in all women, and it is possible by pure mischance to use in one and the same test a number of animals every one of which is refractory. Nevertheless the aim in these tests must be 100 per cent. accuracy, and no test which yields more than 1 per cent. of error can claim much support. It is for this reason that most of those who are carrying out these tests continue to rely upon the Aschheim-Zondek and Friedman tests, but everyone is waiting for the discovery of a new test animal, and for the elaboration of new techniques which will shorten the time required without affecting the reliability.

Chemical Tests

These biological tests are necessarily somewhat expensive. Animals must be bred or bought, fed, housed, and cared for; the work requires a Home Office licence and a degree of surgical skill. It is clear that if there could be devised some chemical test which could conveniently be performed in half an hour or so, and which would remove the necessity of maintaining and slaughtering thousands of animals and yet yield a degree of reliability equal to that of the biological tests, it would surely replace them. Several such chemical tests for the recognition of early pregnancy have been devised, but as yet none of them can compare in respect of trustworthiness and simplicity with the biological tests now in use. But recent work seems to show that it is not improbable that sooner or later a simple, inexpensive, and reliable chemical method of pregnancy diagnosis may be evolved.

Voge, six years ago, first suggested that Knoop's bromine water test for histidine might be used as a pregnancy test, in view of the fact that a connexion between the hypophyseal hormones and the compounds of the β-iminazolyl type had been demonstrated. This suggestion provoked at the time a certain amount of experimental inquiry and a great deal more destructive criticism. However, Kapeller-Adler (1933) rescued this test from the limbo of forgotten things, and by introducing certain modifications, which obviated many of the difficulties and removed certain of the causes of error, succeeded in making the test much more reliable. Renton (1935), in reporting on a series of 100 tests, records that among them there were but seven false negatives. This, of course, though infinitely better than Voge's original figures, is not yet nearly good enough. Another chemical test is that devised by Visscher and Bowman (1934). This was critically discussed in a recent number of the *Journal* by Gladys H. Dodds (1936), who has completed the test on 100 pregnancy cases, obtaining a correct result in 90 per cent., and on eighty non-pregnancy cases with an 88.8 per cent. of accuracy. Again these figures make it impossible for the present to substitute this test for the biological ones that are now employed, but they are encouraging, and it is to be hoped that they will stimulate further research in this subject.

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CENTENNIAL OF THE ARMY MEDICAL LIBRARY, WASHINGTON*

BY

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It is a very high honour as well as a most pleasant privilege to assist at the Centennial of the conception of the Library of the Surgeon-General's Office, United States Army, now containing more than a million items and the largest medical library in the world. George Adami (1914) described the *Index-Catalogue* and the *Index Medicus* as America's greatest gift to medicine, and in his admirable paper "The Centennial of the World's largest Medical Library: The Army Medical Library of Washington," from which I have freely drawn, Major E. Erskine Hume tells us that Professor William H. Welch not only expressed a similar considered opinion in 1921, but at his last visit to the Library placed it above America's services in connexion with anaesthesia, the insect transmission of disease, and the development of public health laboratories.

The transformation of medicine in America during the last twenty years of the nineteenth century and after was due to several causes: among others to the men of Billings's generation, especially Welch and Osler, to the example set by the Johns Hopkins University and Hospital, to the Library of the Surgeon-General's Office, its *Index-Catalogue*, and the *Index Medicus*. The Johns Hopkins Hospital, the Library, its *Index-Catalogue*, and the *Index Medicus* were largely the offspring of Billings's energetic initiative.

It is surely quite unnecessary to attempt to preach to the converted on the value and inspiring virtue of medical libraries, for this has been so conclusively set forth by Billings, by Oliver Wendell Holmes (1809–94) at the first opening of the Boston Medical Library in 1878, by Osler in "Books and Men," also at the Boston Medical Library when a new building was opened in 1901, and in 1926 at Cleveland in the charming address "The Doctor and his Books" by Professor Harvey Cushing, Osler's pupil and Boswell, who could so convincingly have shown here and now how that tradition survives.

The Army Medical Library

The layman in the street might be puzzled to explain why and how it came about that the Surgeon-General of an army, however great, should have such a library as this attached to his office, which is devoted more to active organization and orders than to medical bibliography ancient and modern. The answer, clear to everyone here, is the personality of John Shaw Billings of the Surgeon-General's Office and the creator of its library. Originally a small collection of reference books for the use of the Surgeon-General (Joseph Lovell) in his office at Washington—according to Billings (1880) some time before 1836—it long remained in a state of suspended animation. In 1840 a manuscript catalogue listed 135 works (228 volumes); at the outbreak of the Civil War (1861) the number of volumes was between three and four hundred.

Besides books, pamphlets, the valuable collections of 450 out of the estimated 600 medical incunabula (books

* Commemorative Oration (abridged) given at Washington, November 16th, 1936.

printed before 1500), and of Paris theses unrivalled even in their native city, the Library has five thousand portraits of medical men, and a collection of medical autographs to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library has stimulated beneficial imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe (Garrison).

The Army Medical Library (up till 1922 always called the Library of the Surgeon-General's Office) has now, as happens sooner or later to active libraries, been faced for some time with the impossibility of further expansion on its present site, which indeed is now wanted for the further building development of Washington. What better way of celebrating the commencement of the second century of the Library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

The Index-Catalogue of the Library of the Surgeon-General's Office

A library is obviously a great and essential factor in the preservation of knowledge and history. It has, however, been rather pessimistically said that a library is a mausoleum where knowledge lies dead and mummified; this may be a real danger unless it is activated and kept alive by a guide to its contents. A library is not complete without a good catalogue—namely, one with the double entry of author and subject; and it is obvious that the larger the library the more fully will such a catalogue afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to any other branch of science. As long ago as 1887 the Library of the Surgeon-General's Office obtained annually 700 published medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have become much more numerous; at the end of 1912 the total number of current periodicals was estimated at 1,654 (C. P. Fisher); the Library received 1,895 in the year 1916, the number fell to 1,240 in 1920, but rose to 1,925 in 1927 (Garrison, 1929), and now is about 2,000. Medical journals vary in their span of life; some are quite ephemeral, and there appears to have been a considerable mortality during the world war. Their fluctuating population is compatible with Bulloch's estimate that of the 23,000 items in the "World List of Scientific Periodicals," covering the years 1900–31, 5,000 were medical. The bibliographical scope of the *Index-Catalogue* is therefore phenomenal, and widespread appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in the medical libraries of Europe.

Without in any way detracting from the services of the bibliographical fathers it is obvious that the life of a Government Department or public institution is potentially perpetual and not limited by the relatively short span of an individual life. Other medical bibliographies were described by Osler as Lilliputian as compared with the Gargantuan character of the *Index-Catalogue*.

Among bibliographies that of medicine now takes a very high, if not the highest, place. As so largely responsible for bringing this about, the *Index-Catalogue of the Library of the Surgeon-General's Office*, which is beyond any comparison the most exhaustive medical bibliography ever undertaken, and the *Index Medicus* have made the whole medical world, especially English-speaking readers, hopelessly insolvent debtors. This far-reaching obligation must be most gratefully, and humbly, acknowledged.

The history of the *Index-Catalogue* began in Billings's brain from his experience in 1860, when the need for such a bibliography was painfully forced on his notice, and it is probable that he began to form plans after being given in 1868 a practically free hand with the fund of eighty thousand dollars; the catalogue published in 1872 and 1873 led up to the definite proposals in 1876 contained in his "Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General, United States Army." This was submitted widely to universities, libraries, and medical men for criticism and suggestions. It was arranged under both authors and subjects, and so far-seeing that its style and arrangement were practically those subsequently adopted in the *Index-Catalogue*. It was warmly welcomed in his dedicatory address at the opening of the Boston Medical Library in 1878 by Oliver Wendell Holmes, who correctly prophesied that a liberal appropriation by Congress to carry out such a work for this advancement of sound knowledge and the improvement of human conditions would greatly redound to the honour of the nation.

The first series of the *Index-Catalogue* (sixteen volumes) began in 1880, when Congress, then urged by Abraham Jacobi (1830–1919), made the first appropriation for this purpose, and its sixteen volumes came out yearly, closing in 1895; it indexed 85,663 author titles, 151,504 pamphlets, of subject titles 168,587 books, and 511,112 journal titles. It was edited by Billings, who in the last volume spoke of it as "a labour of love" with the co-operation of Fletcher, who supervised the proof-reading and devised the abbreviations of the periodicals.

The second series consisted of twenty-one volumes, which were issued between 1896 and 1916 and were edited by Robert Fletcher until his death in 1912, and was completed by Garrison and Allemann. The third series (1918–32) consisted of ten volumes, and indexed medical literature up to the end of 1925, under the direction of Albert Allemann, who was principal assistant librarian from 1922 to 1932.

At one time it was arranged that the *Index-Catalogue* should come to an end with the third series. This would have been a bibliographical catastrophe of the first magnitude and have required some corresponding substitute, such as a clearing-house of knowledge under the League of Nations, a suggestion made in the *British Medical Journal* in 1929. But fortunately in the following year anxiety was relieved by Surgeon-General M. W. Ireland, who, after receiving and considering opinions from various sources, announced that another series would at once be undertaken.

The "Index Medicus"

This famous and invaluable monthly bibliography of the world's medical publications, though long a close companion and immediate supplement of the *Index-Catalogue*, was never an official Government periodical, and therefore depended for financial support on its sales, thus causing its devoted editor, Fletcher, much business worry. In Garrison's words (1913) "the work of copying out the library cards for redaction was parcelled out, as the celebrated Haller did with his eighteenth century bibliographies of medicine, among the wives and daughters of the library force as private work." It became a sort of annual *Index-Catalogue en miniature* (Garrison, 1915) and, like the larger work, had a double entry of subject and author. Starting in January, 1879, a year before the first volume of the *Index-Catalogue* appeared, it came out monthly until May, 1899, when it sank in financial deep water; for, in spite of the help it gave medical writers, its subscription list was never large, much less sufficient to meet the expenses of publication. Many of us, it must be feared, regarded the *Index Medicus* and the *Index-Catalogue* as natural blessings, like fresh air and sunshine, and did not realize that gratitude should take a more practical form than passive expectation of their continuance. Three more volumes (1900–2) were brought out under the title *Bibliographia Medica (Index Medicus)* in Paris with the support of C. Potain (1825–1901), G. Debove (1845–1920), Charles Richet (1850–1935), with Marcel Baudouin (1860) as editor-in-chief. In 1903 the *Index Medicus* was given a fresh lease of life by the wise generosity of the Carnegie Institute of Washington, which had been incorporated in 1902 with Billings as vice-chairman of the Board of Trustees. The *Index Medicus* continued until 1927, when it was amalgamated with "The Quarterly Cumulative Index to Current Medical Literature," published since 1916 by the American Medical Association, under the title of the *Quarterly Cumulative Index Medicus*.

Librarians

Like many other lovers of literature, whole-time librarians usually lead secluded lives outside the ambit of the limelight. The ideal librarian is a saintly, self-denying character with a keen interest not only in books but in their would-be readers, whose time he saves, thereby helping them, rather than himself, into print and prominence.

The number of medical men who have been whole-time librarians of medical libraries is small ; but in the United States what may have been lacking in quantity has been more than made good by quality. To three bibliographer-librarians of the Army Medical Library tribute is most justly due—Billings, Fletcher, and Garrison: for, like the history of the world, that of this great library is the biography of its great men (T. Carlyle).

John Shaw Billings

John Shaw Billings was born on April 12th, 1838, in Cotton Township, Switzerland County, Indiana, as the second of the five children, two only surviving infancy, of James Billings (1806–92) and Abby Shaw, a descendant of John Howland, one of the Pilgrims. His father's family, originally Billing, came from the village of Billing in the diocese of Peterborough in the county of Northampton, England. In the middle of the seventeenth century William Billing of Taunton, Somerset, who was a lineal descendant of Sir Thomas Bylling or Billing (ob. 1481?), chief justice of the King's Bench, emigrated to New England. He was a direct ancester of John Shaw Billings, the final s having been added in the eighteenth century in America.

As a young boy Billings worked on a farm of which his father was in charge, but even then he was an omnivorous reader and was largely self-educated. By an arrangement, entailing resignation of any further financial help, he secured from his father the necessary payments for instruction at Miami University, Ohio, where in 1857 he took the degree of bachelor of arts with distinction in classics. He then entered the Medical College of Ohio at Cincinnati, and supported himself during a two-years course ; each year lectures were given for five months, the lectures being precisely the same year after year. In a reminiscent address (1888) on the " Medical College of Ohio before the War " he remarked that " in those days they taught us medicine as you teach boys to swim—by throwing them into the water." The privations of these two years of medical education were the hardest of his life, and he believed that he had never recovered from the effects of one winter during which he lived on seventy-five cents a week. He looked after the care of the dissecting rooms, and before graduation held internships in two hospitals. A thesis was at that time demanded for the doctorate, and during the preparation of his essay on " The Surgical Treatment of Epilepsy " (published in 1861) Billings found that there was not any really efficient medical library in North America ; this stimulated him later, when he made the opportunity, to provide these much-needed facilities—the Library of the Surgeon-General's Office, its *Index-Catalogue*, and the *Index Medicus*. Indirectly this thesis thus did an enormous service, probably far more than any other thesis has done, or ever will do, to medicine. After graduation in 1860 he became demonstrator of anatomy in the medical school, and the prospect of a surgical career appeared on the horizon. His life's work, however, was entirely changed by the outbreak of Civil War in 1861. When he joined the Army of the North he was exceptional in equipping himself with what were then considered as " new-fangled notions "—namely, a set of clinical thermometers and a hypodermic syringe. His services in the war, first as assistant surgeon and subsequently as acting medical inspector of the Army of the Potomac, were recognized by the brevet of lieutenant-colonel, March 13th, 1865, "for faithful and meritorious service." On August 22nd, 1864, Billings was relieved from duty in the field and posted to the Washington branch of the Medical Director of the Army of the Potomac, and on December 27th, 1864, was transferred to the Surgeon-General's Office in the War Department, where among other duties he was in " nominal, though not official," charge of the Library. Here he remained for thirty years, until on October 1st, 1895, he retired at his own request. For the first ten years his official duties were of a somewhat dry, routine character, but this did not prevent him from working on his own account, especially on the microscopy of cryptogamic fungi. In 1875 Billings's plans for the Johns Hopkins Hospital were selected as the best by its trustees, and for a quarter of a century he played a dominant part in its organization ; this was one of the three greatest of his many-sided activities, the other two being the Surgeon-General's Library with its *Index-Catalogue* and the *Index Medicus*, and the New York Public Library.

The next year was notable for the appearance of his " Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General of the United States Army," and also of his " A Century of American Medicine, 1776–1876: Literature and Institutions," which was described by Garrison (1929) as the most critical and useful account of American medical literature ; it was also an antecedent of Abraham Plexner's report to the Carnegie Foundation for the Advancement of Teaching on " Medical Education in the United States and Canada " (1910). In 1889 overtures were made to Billings to induce him to move to Philadelphia as professor of hygiene, and in 1891, with the permission of the Surgeon-General, he began to lecture there on hygiene and vital statistics, and in 1895 left the Surgeon-General's Library and moved to Philadelphia to take up the professorial chair. On June 1st of the following year, however, he was released from this chair in order to take up the post of Superintendent-in-Chief of the New York Public Library, which on his death in 1913 contained two million volumes and had more than fifty branch libraries, with a staff of a thousand persons. In his last twenty years this forceful reserved man went through eight (four being major) operations, for cancer of the lip and calculi, and finally succumbed on March 11th, 1913. He was buried with military honours in Arlington National Cemetery.

In his time Billings played many parts, and with uniform success ; a man of affairs, he thought and organized far ahead, on broad lines, and in many directions, as his output of 171 publications in the course of half a century (1861–1911) bear witness. As a bibliographer he has been compared with the encyclopaedic Albrecht von Haller of the eighteenth century, and was given the palm by Osler. From his eminence as a vital and medical statistician he was called in to take an active part in the reports of the tenth (1880) and eleventh (1890) censuses of the United States, and he was constantly giving advice on public health and hospitals. Extremely versatile he was a good judge of men—a faculty not always found in scholarly bibliophiles—and selected Fletcher and Garrison for the War Medical Library, and Welch, Osler, and Halsted for the Johns Hopkins. Garrison, from long association with his chief, drew the character of the strong, straight man who had the power of imposing his will on others, and sometimes employed the Napoleonic trait of simulating anger, but hardly ever was angry in reality. Welch regarded him as the wisest of men, and Halsted said that he "was too great a man to be fully appreciated in his time." One of his closest friends in London, Sir Lauder Brunton, wrote: " As his name shows, he was of Scandinavian ancestry, and he retained the overpowering strength and energy by which his Berserker forefathers carried everything before them."

Sir John MacAlister (1856–1925), the secretary and moving spirit in the transformation of the Royal Medical and Chirurgical Society of London into the Royal Society of Medicine in 1907, quoted the following response by Billings to a compliment about his success in getting work done:

" I'll let you into the secret—there's nothing really difficult if you only *begin*—some people contemplate a task until it looms so big it seems impossible, but I *just begin* and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done "

Robert Fletcher

Robert Fletcher was born at Bristol on March 6th, 1823, as the son of Robert Fletcher, an attorney and accountant. For the two years 1837–9, before he entered on "the physic line" at the Bristol Medical School, he worked in his father's office, and this probably accounted for his later interest in medical jurisprudence, on which he lectured from 1884 to 1888 at Columbia University, Washington, of which he was made an honorary M.D. (1884), and at the Johns Hopkins University (1897–1903). In 1839 he was apprenticed to Henry Clark (1801–61), a well-known surgeon and one of the founders of the Bristol Medical School, for the usual term of five years; the last two of these years he spent at the London Hospital as a pupil of James Luke (1799–1881), who was twice president of the Royal College of Surgeons of England, and of a physician whose name Fletcher, when in reminiscent mood in the last year of his long life, confessed had faded from his memory. He married Hannah, daughter of John House of Bristol, in 1843, and in the following year obtained the Membership of the Royal College of Surgeons of England (M.R.C.S.) and the Licence of the Society of Apothecaries (L.S.A.), then the usual qualifications of general practitioners. In 1847 he emigrated to the United States and settled in practice at Cincinnati, where he may have met his junior in years and future friend and chief—Billings. He might have remained there indefinitely; but the Civil War changed both their lives. They certainly knew each other when surgeons in the Army of the North during the Civil War, after which they both were promoted, Fletcher to the rank of colonel "for faithful and meritorious service."

In 1871 he was called to the Provost-Marshal's office in the War Department at Washington to take part in the preparation of what became two volumes of medical and anthropological statistics derived from examination for military service of more than a million men. This work, in which he wrote the special section on anthropometry, was published in 1875, and on September 1st, 1876, he began his long association with the Surgeon-General's Library, of which he was the principal assistant librarian from 1876 to 1912. The work on the *Index-Catalogue* now went ahead under Billings and Fletcher who, as already mentioned, also launched the *Index Medicus*, which was mainly directed by Fletcher as associate editor (1879–99) and as editor-in-chief (1903–12); he has therefore been gratefully called "the Father of the *Index Medicus*."

Fletcher did not publish under his own name nearly so many papers as his colleagues Billings and Garrison. He was a dignified, extremely kindly, hospitable, and learned man, compared as a scholar to William Heberden the elder by Garrison, and described by Osler as looking like a courtly gentleman and student of the old school, and seeing life steadily and seeing it whole. He had a distinct physical resemblance to Sir David Ferrier (1843–1928), or so it seemed to me when he most pleasantly made me acquainted with the Library in 1907. Age preserved his best qualities, and he lived up to his favourite therapeutic motto "Treat any bodily ailment with contempt." Like Billings, with whom he was described as "working beautifully," he set a wonderful example of hard, honest work. Alike in character they differed in temperament; Fletcher preferred the quiet work of the Library to the outside activities so noteworthy a feature of his colleague's life. Rich in the affections of his professional colleagues, he received honours of the best kind; on January 11th, 1906, he was entertained at dinner in Washington and presented with a loving-cup by some leaders of the profession. In 1910 he received from the Royal College of Surgeons of England the honorary gold medal "for liberal acts of distinguished labours, researches, and discoveries eminently conducive to the improvement of natural knowledge and of the healing art." This medal, instituted in 1802, has been awarded on seventeen occasions only during a hundred and thirty-four years. On October 7th, 1912, the honorary degree of M.D. was conferred on him *in absentia* by the University of Bristol.

In 1911 he had an attack of diphtheria and recovered slowly, but returned to the Library and worked until a few days before his death on November 6th, 1912, at Washington in his ninetieth year, as did Morgagni (1682–1771), and Clifford Allbutt (1836–1925). Like Billings he was laid to rest with military honours in Arlington National Cemetery.

Fielding Hudson Garrison

Fielding Hudson Garrison, born at Washington, D.C., on November 5th, 1870, was the son of John Rowzee and Jennie (Davis) Garrison. He took the degree of A.B. in 1890 at the Johns Hopkins University and that of M.D. at the University of Georgetown, Washington, D.C., in 1893, work for this being chiefly done at night after his duties at the Library were ended. In the *American Who's Who* it is stated that he was assistant librarian in the Surgeon-General's Library from 1889 to 1922, but the official records of the Surgeon-General's Office show that he was appointed a clerk on probation on March 4th, 1891. His natural ability in bibliography was developed by Billings and Fletcher. In 1917 on the outbreak of war he was commissioned as major in the Medical Reserve Corps, becoming Lieutenant-Colonel, Medical Corps, U.S.A., in 1918, and Lieutenant-Colonel, Medical Corps, Regular Army, on July 1st, 1920. He first served in several camps in America, and later was in the Philippine Islands, 1922–4. He was retired as colonel on May 19th, 1930, and was appointed librarian of the Welch Medical Library, Johns Hopkins University, and retained this post until his death.

Garrison was an indefatigable, and equally unobtrusive, worker for the *Index-Catalogue* and as editor of the *Index Medicus* (1903–27); in the earlier years of the latter responsibility he is said to have often spent eighteen out of the twenty-four hours in securing perfect accuracy. He continued to act as an associate editor of its successor the *Quarterly Cumulative Index Medicus* (1927–9). He will long be known for what he entitled *An Introduction to the History of Medicine* (1913, fourth edition 1929), which is the indispensable companion at the elbow of those who care to verify names, dates, and events. It would puzzle imagination to picture any work, short of a small library, which could correspond to such an introduction.

He was a graceful and allusive as well as a prolific writer on many aspects of medicine; thus during the last ten years of his life he wrote seventy-seven articles in the *Bulletin* of the New York Academy of Medicine, of which he had been consulting librarian since 1925. Of his full memoir of J. S. Billings (1915) he wrote nearly twenty years later "it took more vitality out of me than anything else I have done. I should never dream of undertaking anything of the kind again." In a letter six months before his death in reply to an inquiry when a new edition of his *Introduction to the History of Medicine* might be expected, he modestly wrote with a philosophy somewhat resembling that of Koheleth, the author of Ecclesiastes:

> "Medical publishers, like other business men, have been under the ban of 'Old Man Depression' and are chary about new ventures—in this case, until the fourth edition is completely sold out, which may be *ad Graecas Kalendas*. I had two drawn contracts for new books and both went up in smoke. But, as the Spaniards say, 'I am glad,' as such things mean using up one's vitality over references and indexing, and often to no purpose."

A great correspondent, he thus had friends, such as Clifford Allbutt, though they had never met. He wrote a neat hand without a trace of writer's cramp, though in 1928 he admitted that he had "never had the luxury of a doctor's private secretary." I never saw him, but we had corresponded since 1926, and in the last letter from him, dated March 16th, 1935, he spoke of writing "a brief editorial on Fontana, shortly after which I suspend operations until the summer vacation, when I usually resume writing." Few medical men can have better deserved the honorary degree of Litt.D. which in 1932 the University of Yale honoured itself by conferring on him. With a wide and refined taste in literature the chief interest in his life was music; he was an accom-

plished pianist, and, perhaps unexpectedly, was well versed in thermodynamics. An extremely sensitive soul, he lived and laboured in a backwater while honours and promotions drifted by in other directions.

His health had long been poor, as may be suspected from some of the short quotations made above from his letters. A sudden emergency necessitated an abdominal operation from which he did not recover, dying in the Johns Hopkins Hospital on April 18th, 1935. The day before his operation he spoke of his work, of an iconography and bibliography of W. H. Welch, and of a volume of his own collected papers to be published under the title "Medicine in Space" (Sigerist). Like Billings and Fletcher he was buried in Arlington National Cemetery.

Major Erskine Hume has kindly sent me a copy of his full and sympathetic account of Garrison's association with the Library, which will appear in the forthcoming special Garrison number of the *Bulletin of the Institute of Medical History*.

TREATMENT OF G.P.I. AT LONDON MENTAL HOSPITALS

Up to the present most of the sufferers from general paralysis of the insane who receive treatment under the London County Council have been sent to Horton Mental Hospital, where there are special arrangements for controlled infection with, and treatment of, malaria in association with the malaria laboratory established by the Ministry of Health. Difficulties in respect of accommodation, however, have made it impossible to receive there all the cases for which this treatment would be desirable. Voluntary and certified patients of both sexes have received care during the acute and convalescent phases of their malaria in a special detached villa at Horton, but this provides room only for twenty-three patients. It is now proposed that patients shall be removed from this villa on the completion of the febrile stages of their treatment so that the unit can be used exclusively for patients during the time they are infected with malaria. It is expected that this new arrangement will permit of 180 treatments a year, an increase of 105 over the number given last year, and that it will suffice for the present, but that with wider publicity of the knowledge of the establishment of a special centre at Horton an increased number of voluntary patients will avail themselves of the facilities for early treatment, and make even this extended accommodation insufficient. It is stated that while a complete scheme of re-allocation of accommodation must be postponed, it is possible to contemplate at once the admission to the special malarial treatment unit at Horton of such early cases as are likely to respond rapidly and favourably, so that they may be discharged within a short period—not much more than two months—passing through the small number of beds available in the villa without silting up the accommodation for chronic cases provided elsewhere in the institution.

Prophylaxis and Research

It is also proposed to pursue investigations into aspects of general paralysis as yet imperfectly explored. An inquiry into family histories, which has been started already, will be followed up by careful investigation by specialist staff so that treatment can be arranged for persons in whom positive serological findings indicate hitherto unsuspected latent disorder. A matter of equal importance is the ascertainment of cases of asymptomatic neurosyphilis. As the investigation of family histories develops it is likely that the desirability of making liaison arrangements between the mental hospital and the venereal diseases departments of the general hospitals will become evident. It is proposed to institute extensive research on the following lines:

Clinical.—A thorough investigation will be made of records of cases admitted to the hospital not only since the advent of malarial therapy at Horton in 1925, but also in the period before malarial therapy was first employed in Vienna in 1917. Such an inquiry should help to settle many problems regarding the severity of the disease and the question whether the type has altered.

Serological Tests.—More frequent examinations will be carried out, especially with regard to the cell-content of the cerebro-spinal fluid.

Pathological and Biochemical Investigations.—These will be conducted with greater completeness under new arrangements for sharing the necessary work.

Psychological Investigations.—No work of this nature has been carried out hitherto, but from the literature there appears to be need for inquiry.

Literature and Statistics.—Touch will be maintained with modern developments in other countries, and complete data in statistical form will be recorded.

With regard to medical staff, it is considered that the time has come when the officer responsible for malarial work should be additional to the present fixed staff and should devote whole time to it, with assistance from the ordinary medical staff of the hospital. The officer must be an experienced research worker, and as he (or she) will necessarily have to remain outside the scope of normal promotion because of the specialized nature of the post, which will not afford the opportunities for full administrative experience required for a potential first assistant or deputy medical superintendent, it is considered that the rank of second assistant medical officer should be attached to the position. In order to relieve the officer in charge of the malarial therapy work of general medical duties, when that officer has been appointed one of the three posts of assistant medical officer now included in the normal staff of Horton Mental Hospital will be filled by seconding, for not more than one year at a time, an assistant medical officer from some other unit in the London mental hospital service.

RED CROSS WORK AT HOME AND ABROAD

The Duke of York presided at the statutory meeting of the council of the British Red Cross Society held at 14, Grosvenor Crescent, S.W., on November 18th.

Reviewing the action taken in respect of air raid precautions Sir Harold Fawcus, Director-General, said that in accordance with the Society's agreement with the Home Office to enrol and train personnel for anti-gas services and air raid precautions forty-eight Voluntary Aid Detachment officers had qualified at the Civilian Anti-Gas School as first-class instructors recognized by the Home Office. The Society had now issued a total of over 17,500 certificates for first aid in chemical warfare to its successful examination candidates, and a further 720 proficiency badges and bars. The Society had recently decided to inaugurate an Air Raid Precautions Reserve of men and women holding Red Cross anti-gas certificates, and it was hoped that a large number of men and women would enrol, in order to be able to carry out the less technical duties connected with casualty services.

Sir Arthur Stanley, chairman of the Executive Committee, reported on Red Cross action in Spain. The International Red Cross Committee sent a delegate to visit both sides in the civil war, and subsequently appealed to all national Red Cross societies to send assistance in personnel, material, and money. The British Red Cross immediately sent a donation of £500 to the International Committee, which established a number of centres in Spain staffed with their own personnel, for the relief of soldiers and civilians of both sides in the conflict. An appeal was made in this country for additional funds, as a result of which a further £500 had been sent to the International Committee as well as a supply of bandages. The total reached by the relief fund now stood at £1,132.

Dame Beryl Oliver made a statement on the Society's detachments, which now number 1,072, an increase of thirty-three detachments in six months. The personnel numbers 26,103, being an increase of 621. During the summer the detachments had staffed a number of camp hospitals in connexion with the Territorial Army camps. Nursing and first-aid staff had been provided for thirty-four Girl Guide camps and for the Northern Boy Scouts jamboree, and 15,000 cases had received attention at Red Cross dispensaries in the Kent and Sussex hop fields.

ADVENTURES IN RESEARCH

SIR ROBERT McCARRISON'S LLOYD ROBERTS LECTURE

In his Lloyd Roberts Lecture, delivered at the house of the Medical Society of London on November 19th, Major-General Sir Robert McCarrison described certain of his "adventures" in medical research during the last thirty-five years. His narrative began with his early years of service spent in Chitral and Gilgit,

"where Nature makes large-scale experiments upon man. . . . After devoting many years of my life to the investigation both of naturally occurring disease in human beings and of experimentally induced disease in animals, I am convinced that it is only by study of the experiments which Nature makes upon man . . . that we shall reach final solutions of the causes and origins of the diseases to which he is subject. This is not to decry the experimental method in research, to which modern medicine owes so much, but to insist that it must be the coadjutor and not the master of those who seek in man himself and in the circumstances of his life for the causes and origins of human ailments."

Sandfly Fever

One of his first adventures in the early years of the twentieth century on the north-west boundary of the Indian Empire was an attempt to discover the cause of a disease prevalent in Chitral and locally known as "Chitral fever." With the hot months of summer there fell upon his regiment a strange sickness which few escaped. The malady was a single paroxysm fever, with intense frontal headache and pains in the muscles and joints, lasting, as a rule, three days, and followed by severe prostration. Since the date of the British occupation of Chitral it had been returned officially as ague. Clinically it differed from malaria, and it was not influenza nor dengue, which to some extent it resembled. Having decided that he had to do with a new disease, he set himself accurately to record its clinical features, this being rendered easier by two attacks from which he himself suffered, while the study of its epidemiological features was facilitated by the experiments which military depositions and his own curiosity made upon the troops. He found that the disease did not occur above a certain latitude, that it was not contagious, and that its incubation period was five days or less. The appearance, disappearance, and distribution of the malady corresponded in a remarkable way with those of the sandfly. To-day an insect vector would appear obvious, but thirty-three years ago the idea was a novel one, certainly in connexion with short fevers. After various inconclusive experiments, he left Chitral on transfer to Gilgit without being able to prove that the blood was infective or the sandfly the transmitter of the infecting agent. So convinced was he of this, however, that he made plans to revisit Chitral to complete his observations, but was recalled to urgent duties in Gilgit, and the opportunity never recurred. Thus on the verge of the discovery, made later by Doerr, he left the arena defeated, but not without experience gained in the encounter. His experience proved that even without, or with but few, laboratory aids to research it was sometimes possible, by a study of the characters of human ailments and of their behaviour under varying conditions of life among human beings, to get close to their causes.

Goitre

Sir Robert McCarrison next related some early experiments on goitre. His studies began with a survey of this malady in a number of Indian villages, the prevailing condition being the classical "endemic goitre" of mountainous countries. Some villages were free from it, in others its incidence was slight, in yet others it was high, often very high. In some villages where it did prevail the inmates of certain houses might be free from it while their neighbours suffered. Many years were to pass before he realized that there were a number of goitrogenic agents, amongst them lime, and that the absence of one of them from a locality did not necessarily preclude its influence in another where it did exist.

His first experience concerned the nine villages collectively known as Gilgit, eight being located one above another on the same water supply, which reached them from a mountain stream in surface channels which in their passage through the villages were subject to gross pollution by human and animal excreta. The ninth village, located at some distance from the others, had its own water supply, a spring of exceptional purity, not subject to pollution, and this village was free from goitre. His observations suggested that goitre was related in its origin to some living agent contained in the polluted water, and he, with a band of young men newly arrived in India, while obtaining their drinking-water from a spring which was known to be non-goitre-producing, each morning consumed large quantities of suspended matter separated from the water issuing from the village in which the goitre incidence in the general population was highest (45.6 per cent.). Each experiment lasted fifty-six days. Ten of the thirty-six volunteers—"of whom fortunately I was one"—developed noticeable enlargements of the thyroid gland, five had transitory swellings, and twenty-one were unaffected. "The occurrence of goitre in one's own person leaves no room for doubt as to the positive nature of the results of the experiments." Another band of young men consumed in the same circumstances the same suspended matter after it had been boiled, and none of them developed goitre.

He recalled another experience, at Sanawar, in the outer Himalayas, where goitre had prevailed for some sixty years in a large boarding school, the water supply of which was found to be subject to bacterial pollution by human and animal excreta. On his recommendation a new and well-protected supply, piped from a town where goitre was not endemic, was introduced, and the goitre disappeared from the school. While these investigations were in progress laboratory research showed that goitre could be produced in adult animals, and congenital goitre and cretinism in their offspring, by the administration of faecal filtrates or of cultures of faecal bacteria, together with their toxins. The lecturer added, however, that at that time he had still to learn of the negative, or dietetic, factors concerned in the causation of this and other diseases in man, and of their interaction with positive, or microbic, factors. He discussed in some detail the investigations which demonstrated that faulty diet was an important factor in the genesis of goitre. The known positive goitrogenic factors were insanitary conditions, polluted water, intestinal infection, lime, fats, fatty acids, and cyanogen compounds; the known negative factors were deficiencies in respect of iodine, vitamin, protein, and phosphate. After describing the position to which his investigations in this field had led him Sir Robert McCarrison suggested that the monotheistic view of iodine deficiency as the one and only cause of goitre would receive the less veneration the more clearly the principles of nutrition and the relation of the thyroid gland to nutrition were understood, the more accurately goitre surveys were conducted in human beings, and the closer the study of the environmental conditions of life under which the disease prevailed in man.

Cretinism

The most tragic of the sequels of goitre was very prevalent on his arrival in certain parts of Chitral and Gilgit. He collected a large number of cases of cretinism and

obtained for each as complete a history as possible. Two types of the disease were found: the classical type, and another to which he gave the name of "nervous or tetanic cretinism," in which the cretinoid state was associated with tetanic spasms, nystagmus, strabismus, and spastic paralysis of the limbs. The therapeutic use of fresh thyroid extract, made from the glands of sheep, caused marked improvement in both types of cretinism; the nervous symptoms responded to this treatment in a remarkable way. Post-mortem investigation of one cretin showed an extensively fibrosed condition of the thyroid gland and no trace of parathyroids at all. Some years afterwards he succeeded in producing, under experimental conditions in rats, a similar involvement of the thyro-parathyroid glands. This was done by first producing goitre in female rats and then administering to them, before and during pregnancy, filtrates of emulsions of faeces from goitrous and non-goitrous persons or cultures of bacteria made from the faeces of such persons. Congenital goitre, cretinism, and congenital parathyroid disease were produced in a proportion of the offspring by these means. The toxic products of faecal bacteria grown under anaerobic conditions appeared to be responsible for the haemorrhagic and fibrotic lesions in the parathyroid glands. Enormous congenital goitres, with "hairless disease," were produced in kids by similar means. It appeared, therefore, that congenital goitre, cretinism, and congenital parathyroid disease were due to toxic absorption from the maternal intestine in the presence of a crippled maternal thyroid mechanism, and, as he now knew, of a relative insufficiency of iodine in the diet.

Deficient Diets and Disease

Sir Robert McCarrison then proceeded to describe the classical work on deficiency diets and disease, the story of which is familiar. He began his narrative with his work at the Central Research Institute, Kasauli, in 1913, when he fed pigeons on polished rice, the controls receiving a liberal diet of mixed grains. Resuming after the war, a long series of investigations on the effects of faulty food deficient in vitamins on the animal organism was begun, and he quoted extensively from his own writings of 1919 and 1920, giving his generalizations from the facts he had observed up to that time, and which had been justified by the acquisition of fresh facts since.

He also touched on his studies in beri-beri, begun in 1922, leading up to the conclusion that true tropical beri-beri, endemic in certains parts of India, was due to the habitual use of dietaries on the verge of vitamin insufficiency, while sudden reductions in the already sparse vitamin intake, overwork, fatigue, and exposure to cold and damp were determinants of outbreaks of it. Another disease which engaged his attention about this time was urinary calculus, a survey of which, as it prevailed in India, provided the basis for experimental work on animals. The conclusion reached was that two categories of dietetic factors were concerned in the causation: positive, including excess of lime and some unknown agent present in whole cereal grains, notably wheat; and negative, including deficiency of vitamin A and deficiency of phosphates relative to the amount of lime in the diet. His attention was also drawn at about this time to the very high incidence of peptic ulcer in Travancore, and the result of an experiment on rats, which he described, had convinced him that in India, and probably in other countries, the long-continued use of faulty and ill-balanced food, deficient in good protein, vitamins, and mineral elements, was an undoubted cause.

In conclusion the lecturer touched on his investigation, begun eleven years ago, on the relative nutritive values of the national diets of India in relation to the physique and health of Indian races, and also on the effects of different manures on the nutritive values of certain food grains, as revealed by feeding experiments on animals. It was shown that the same grain when grown on the same soil and watered in the same way was of higher nutritive value when the soil had been manured with natural farmyard manure than when manured with artificial chemical manure.

These various adventures, briefly sketched, which had come his way served to illustrate the theme underlying their narration:

> "That it is to man himself, 'to what man is in relation to the articles of food and drink and to his other occupations' (Hippocrates), that we must turn in our search for the causes and origins of human ailments, and to the laboratory for mechanical, chemical, experimental, and other aids to observation and understanding. It is by field research in company with laboratory research—the one not divorced from nor lagging behind the other—that we may best prosecute our search, best make our pilgrimage along the road to truth."

HEALTH EDUCATION CONFERENCE

METHODS OF HEALTH PROPAGANDA

The Central Council for Health Education (on which the British Medical Association is now to be represented) held its ninth annual conference on November 19th and 20th at the London School of Hygiene and Tropical Medicine. The delegates attending from local authorities, insurance committees, and educational associations were in larger number than in any previous year, and it was stated that during 1936 the activities of the Central Council had more than doubled. The first day was devoted mainly to a discussion on health propaganda and education, the morning session being presided over by Lord HORDER, and the second morning, with Captain G. S. ELLISTON, M.P., in the chair, to a discussion on "Health Education of Parents by their Children." Mr. EDWIN POTTS read a paper on the duties and responsibilities of insurance committees in connexion with health education, and during the conference there were exhibitions of health films, some of them of a very ambitious character. One film was announced as "The Red Army," but it was concerned only with the combat against the bed-bug.

Dr. JAMES FENTON, the chairman of the Central Council, in an address on the year's work, said that in his reference to health and physical fitness in his speech at the opening of Parliament the King had made a call to the nation, and the response promised well for a campaign which depended for its success upon the enthusiastic co-operation of all health authorities and voluntary movements. Since April last the Central Council had had under consideration the formulation of definite proposals for bringing home to the public the value of the public health services and for increasing their use. Of every 100 expectant mothers only forty-nine sought advice from the ante-natal clinics provided by local authorities, and of every 100 school children who were shown by the school medical services to require treatment only sixty-five actually received it. The Central Council continued to carry on its work of assisting health authorities by organizing health week campaigns and distributing posters and literature. It had undoubtedly established for itself a firm position in health educational work, and the calls on its services were at times almost beyond its resources.

"Pleasure Value" of Health

A paper on "Creative Health Propaganda" was read by Dr. J. H. HARLEY WILLIAMS, medical commissioner of the National Association for the Prevention of Tuberculosis. In reviewing the media for health education he said that the Press was still the greatest, and opportunities of teaching became more numerous because "health" was becoming "news." But as such it was still subordinate to war, crime, sex, and personalities. The wire-

less was an excellent medium for appeal to the intelligent and thoughtful, while the cinema was the greatest engine of mass suggestion and propaganda that the world had ever known, but apart altogether from the more modest scale of production that health propagandists could afford, the cinemas would remain closed to them on the ground that "our patrons come to be amused, not instructed." Dr. Williams believed that as the social conscience became educated, physical and mental well-being would provide the sensations of pleasure now associated with tobacco, alcohol, and the films. It was the "pleasure value" of health they must inculcate.

Dr. DRUMMOND SHIELS, medical secretary of the British Social Hygiene Council, who also read a paper, referred to the scope given by the history and romance of medicine for dramatic treatment by cinema and wireless. Pasteur, Lister, and other great names should be made familiar to the multitude. Psychology, but emphasizing the normal rather than the abnormal, was a subject for instruction. In some way or other the credulity of the public regarding patent medicines must be shaken. Much could be done by speaking to selected groups, to parents about their children, to adolescents about their sex problems, and so forth. The difficulty with regard to propaganda concerning cancer and venereal disease was to make the case impressive without arousing deterrent fears, but if emphasis was laid on prevention and early treatment this difficulty could be overcome. The public health services themselves were an education in health, and more publicity for them was desirable. The premises at which they were given should be attractive and comfortable, and a human welcome from the doctor and nurse should be considered part of the equipment.

PUBLIC HEALTH CONGRESS

SOME HOSPITAL PROBLEMS

The Public Health Congress at the Royal Agricultural Hall, Islington, of the earlier sessions of which we gave some account in our last issue (p. 1043), sustained its interest to the end. Discussions on the control of imported food, on litter and house refuse, on park planning in relation to public health, and on water supply brought useful contributions by experts in these directions.

Mr. SOMERVILLE HASTINGS, chairman of the Hospitals and Medical Services Committee of the London County Council, presided at a discussion on the municipal hospital. He made a plea for the setting up of a central authority to deal with the distribution and inspection of hospitals. Nearly all hospitals were doing first-class work, but there were some whose work was less good. The public, of course, had an idea that the work of all hospitals was good, and therefore even where the work was less well carried out they were inclined still to go to that hospital just as much as to others. It was possible for any philanthropist to come along and found a hospital in any situation whatever the need might be. If there were a central authority hospitals would at all events be provided with some regard for the needs of the district. There ought to be inspection of hospitals, not only municipal but voluntary, and he would even go so far as to say there should be actual licensing of hospitals, if not of existing institutions, at all events of new hospitals proposed to be founded.

The discussion was opened by Mr. H. MALYON, steward of St. Mary Islington Hospital (L.C.C.), who said that the alternative to State or municipal control of the voluntary hospitals was the linking up of voluntary and municipal hospitals on a real partnership basis. This would do away with the provision of parallel services by the two hospital systems, a wasteful and uneconomic procedure. At first the linking up would probably be done by a joint committee, representative of all interests concerned, on an agreed basis, but ultimately, he thought, there must be hospital boards for London and the larger provincial authorities, these being statutory authorities set up for hospital administration only, with the Ministry of Health as the centre. Another speaker for the municipal hospitals, Mr. W. R. BEAVERS of Nether Edge Hospital, Sheffield, also thought it would be a bad day when voluntary hospitals were discontinued or subordinated to the local authorities. In Sheffield there was an arrangement whereby the municipal hospitals took from the waiting lists of the voluntary hospitals such cases as the latter could not accommodate, and this not only resulted in closer unison between the two, but removed the grave misfortune of the long waiting list. A provocative speech was made by Mr. R. W. RAMSAY, master of Leicester Public Assistance Institution. When the Local Government Act came in, he said, they were all led to believe that by means of conferences between the local health committees and the governing bodies of voluntary hospitals co-operation would be an accomplished fact. In only very isolated cases had it been accomplished. Professional jealousy between the municipal and the voluntary hospital had reacted to the detriment of the public at large.

Medical Men in Administrative Posts

Mr. W. H. HARPER, house-governor, Royal Hospital, Wolverhampton, said that some hospital authorities thought of hospitals too much in terms of bricks and mortar rather than in terms of staff. He also drew attention to the desirability that municipal hospitals should follow the practice which worked so well in voluntary hospitals, of leaving the lay side of the administration to a lay official. Medical men of the standing required at the head of municipal hospitals were far too valuable from the patients' point of view to have them spend their time taking members of committees to see whether the pigsties had been whitewashed. Mr. Harper also declared that no greater compliment could be paid to the voluntary hospitals than that even to-day they should have waiting lists. After six or seven years of municipal hospitals under the new regime there were still crowds of people who would rather wait to go into a voluntary institution than go at once into a municipal one.

The argument that the municipal hospitals were the best of all training schools for doctors was put forward by one speaker, Mr. MITIVIER, late of Edmonton, who pointed out that it was in the municipal hospitals that the chronic patients were to be found, the very kind of people whom the doctor would meet in his general practice. He complained of the backwardness of local authorities in bringing about appropriation of hospitals under the 1929 Act. Of eighty-three county boroughs not more than forty or forty-five had appropriated their hospitals. What were they waiting for? It was more than time that appropriation should be compulsory. Finally, Mr. W. PITT-STEELE of East Ham, a hospital superintendent, said that he had started with the conviction that the voluntary hospitals should be merged into the State system, but he had now reached the conclusion that "the casualness of the voluntary hospitals is preferable to the ruthless efficiency of the municipal hospitals . . . you cannot make a patient comfortable at the end of a telephone wire from County Hall." He urged his fellow administrators not to let the head office people just govern their hospitals and institutions; to get their staffs interested in the patients, and not merely in the records which the people at the head office loved so much.

The meeting, which resulted in a very frank and animated discussion, was organized by the National Association of Administrators of Local Government Establishments.

MENTAL HOSPITAL ADMINISTRATION

Two congress sessions, both presided over by Sir LAURENCE BROCK, were devoted to the mental hospitals. The therapeutic value in mental illness of physical fitness through exercise was the subject of a paper by Dr. R. STRÖM-OLSEN, physician-superintendent of Runwell Hos-

pital. The organization of a system of exercises and games in a mental hospital, he said, presented no great obstacles, and the small expenditure was amply repaid in the improved condition and behaviour of the patients. Patients should be carefully selected and graded for the physical drill class. Some must be excluded for mental reasons—for instance, those suffering from severe depression, maniacal excitement, or well-developed confusion. In acute melancholia the extreme state of emotional depression tended to be aggravated by forcing the patient to join a drill class ; in maniacal excitement the attention was too defective for any useful co-operation. Special significance attached to exercise in the large group of dementia praecox cases, recent and chronic ; here a great deal could be done to stimulate interest, to break bad habits, to diminish sleeplessness, restlessness, and violence, and to divert the patient's mental energy from the unproductive fantasy life into more useful channels. At the other end of the scale there were the neurotic patients with their anxieties, fears, and obsessions. In his experience it was most convenient to work in three grades: the first for newly admitted patients of the psychoneurotic type, those with mild psychotic symptoms or showing good insight into their own condition, and convalescing patients ; the second for chronic patients and those with more severe symptoms, who were nevertheless co-operative and interested ; and the third for excited, difficult, and regressed patients. It was, of course, necessary to hold these three classes separately.

Occupational Therapy

Dr. RICHARD EAGER, late medical superintendent, Devon Mental Hospital, discussed the organization of recreations and amusements in mental hospitals. He had found so many patients (roughly about 75 per cent.) in mental hospitals in this country to be unoccupied that he visited the Dutch hospitals to see their occupational therapy system. He was so impressed by what he saw there that on his return he resolved to introduce a similar system in his own hospital, with the result that 75 per cent. of the patients were now systematically occupied, and the whole atmosphere of the hospital had been changed from that of a refuge for idleness into a hive of industry. If the organization of a system of occupational therapy during certain hours of the day could completely alter the atmosphere the organization of recreations and amusements on similarly extensive lines would be productive of further beneficial results in the same direction. Dr. Eager then discussed the various forms of amusements (social therapy) suitable for different types of patients. On the subject of films he mentioned that for neurotic and psychotic patients the talking film was an excellent means for thought diversion, but gangster, crime, or sex films, and those which tended to react on the emotions should, in his opinion, be excluded. Many patients were profoundly affected by what they saw and heard on the cinematograph screen, and they very easily tended to use this as a reinforcement to any existing morbid ideas.

The need for community care of epileptics was stressed by Dr. J. TYLOR FOX, medical superintendent, Lingfield Epileptic Colony. There were, he said, over 11,000 epileptics in public mental hospitals, from 3,000 to 4,000 in institutions for mental defectives, and just under 4,000 in special colonies and residential schools. The number of epileptics living in the community no one could number, nor was it likely that any accurate enumeration would be forthcoming, as cases of infrequent or slight fits would always escape observation. He referred to the inquiry conducted recently by the Central Association for Mental Welfare into the epileptics of the community, their mental condition, social status, and need for assistance. The survey suggested that the majority of adult epileptics were unemployed, and bitterly resentful of the fact. There was real need for some sort of organization whose business it was to see that epileptics living at home received periodic visits from sympathetic and knowledgeable people ; also for convalescent and holiday homes where epileptics might go. The chronic epileptic, unemployed for years, with a mental horizon progressively narrowing, might be almost a hopeless case, but not so the epileptic children who year by year were leaving the elementary and residential special schools.

Occupational therapy—not for mental patients, but for the physically disabled, the patient suffering from chronic disease, and the unfit—was the subject of a paper by Mr. H. F. SHRIMPTON of the Children's Hospital, Birmingham. He described what was being done in this direction at Papworth, Preston Hall, Burrow Hill, and elsewhere, and pleaded for the recognition of occupational therapy as an integral part of a hospital's work.

WELFARE OF MOTHERS AND PRE-SCHOOL CHILDREN

A meeting was held under the auspices of the Association of Maternity and Child Welfare Centres and the National Association for the Prevention of Infant Mortality, and was presided over by Dame JANET CAMPBELL. In discussing the need for more ante-natal and post-natal care Dame LOUISE MCILROY said that there were various reasons why the maternity service had failed to bring about any appreciable reduction in the maternal death rate. One of these reasons was that all expectant mothers did not attend clinics or visit their own doctors for ante-natal examination. The lack of continuity of observation and supervision was one of the chief reasons why ante-natal care had failed to do as much as was expected of it. Formerly, when the expectant mother was looked after by the family doctor, continuity was possible, but now she went to a clinic, and was attended by a doctor who often had little knowledge of clinical obstetrics, and she was attended at her confinement by another doctor or a midwife, or went into hospital, where little was known of her ante-natal history. Any national scheme would be a failure so far as a considerable part of the community was concerned if it did not include the general practitioner. Another very important point was that women attended by a midwife should be seen at least three times during the ante-natal period by a qualified medical practitioner. The same practitioner should be called in by the midwife should any complication arise at the time of the confinement, and at the end of her puerperal period the woman should be thoroughly examined by the same doctor. In that way there would be complete responsibility on the part of one medical attendant, which was very desirable.

Speaking of the need for more gynaecological clinics, Dr. CECILE BOOYSEN said that at two birth control clinics she knew the patients underwent a routine gynaecological examination, and from 25 to 33 per cent. of them would benefit by gynaecological treatment, but were not receiving that treatment. Major disorders were found in a small percentage of the women, who had to be sent to hospital at once. In the majority of cases the conditions were minor ones, which the women learned to accept, but which undermined their health. That was one reason why gynaecological examination and treatment should be readily available. Another reason was that cancer of the womb, which was often caused by inflammation that was left untreated for many years, might be prevented in many cases. Gynaecological examination and treatment could not be carried out in a busy surgery in a working-class district, owing to the length of time required ; it had to be performed in a clinic or a hospital.

Dr. ERIC PRITCHARD spoke on the need for more hospital consultative centres. He submitted that the majority of medical officers of infant welfare centres required the services of an expert in paediatrics to help them in the solution of difficult problems connected with nutrition and for diagnosis. Such services could be provided if arrangements were made by the local authority with the nearest general hospital of sufficient size and with the necessary facilities for conducting *x*-ray and pathological examinations. These consultative centres should be under the charge of a qualified expert in paediatrics, but the local authority should make some definite monetary contribution to them, in order to have some share in their administration and control.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

SIR KINGSLEY WOOD ON EXPANSION OF HEALTH SERVICES

The annual dinner of the Society of Medical Officers of Health was held at the Piccadilly Hotel, London, on November 20th. The president, Dr. ERNEST WARD, and Mrs. Ward received the company, which included a large number of members and distinguished guests.

The Right Hon. Sir KINGSLEY WOOD, M.P. (Minister of Health), proposed the toast of "The Society." He said that the duties of his department had always been greatly aided by the invaluable work not only of local authorities and voluntary associations, but—by no means least—by members of the medical profession, whose assistance included the valued help and support received from medical officers of health. Certainly they occupied the front-line position in campaigns for the reduction of disease and the promotion of healthy living. Their work during the last three decades had not only increased in complexity, but had come to be inspired by new conceptions, both of methods and of objects. Whereas their efforts in the nineteenth century had been directed mainly to the improvement of sanitary environment and control of epidemic diseases, the last three decades had witnessed the institution and the steady growth of the health services directed to the care of the individual. In these days the tasks of medical officers of health were not static, but called for constant study of new aspects and the maximum interchange of knowledge and experience, together with mutual confidence. Medical officers of health could rightly claim that they had made a great contribution to the good progress achieved in public health. He looked to the medical officer of health as the man to secure co-operation in his own area, for, after all, he was the only individual who could survey the whole of the health work there. Sir Kingsley particularly thanked medical officers of health for the part they had played in the national housing campaign for the abatement of overcrowding and the clearance of slums. Those matters lay at the root of the improvement of public health. In that connexion medical officers of health had been faced with tasks of considerable difficulty, which they could only have discharged as a result of complete knowledge of their districts. They had carried out their duties without fear or favour; in fact, it would have been impossible to deal successfully with that vast problem without a body of medical officers whose sole concern was the improvement of public health. There was still much opportunity for sound and constructive work, and Sir Kingsley Wood felt sure that those present would agree with him when he said that it was necessary that there should be advances all along the line.

In the recent King's Speech (the Minister continued) the Government had emphasized the importance of securing the improvement and expansion of health services. They wanted to see the continued development of the maternity and child welfare services and the expansion of the school medical services, with, particularly, facilities for further dental treatment. It seemed obvious that the great body of citizens required to give more attention to the care and preservation of their teeth, for dental disease was widely prevalent, though much of it was preventable.

Sir Kingsley Wood added that he had the greatest pleasure in coupling the toast with the name of Mr. Ernest Ward, president of the society and one who had not only had a distinguished career at Cambridge and at the London Hospital, but one who had been particularly active in promoting that co-operation between tuberculosis officers and medical practitioners which was so essential to the success of that service.

The President's Reply

The PRESIDENT, in responding, felt sure that all medical officers of health would take to heart the Minister of Health's remarks with regard to future progress. It was difficult to thank Sir Kingsley Wood. He so constantly deserved and received thanks that anyone offering them was in the position of a man proposing to a widow. It had been done before, and probably done better. Dr. Ward added that he had been honoured to be the first departmental officer—the first clinical officer—to occupy the chair of that society, which demonstrated, if demonstration were needed, that all within the society were equal and that the presidential badge was to be found potentially in the attaché case of the humblest member of the service. He was not a medical officer of health; he had not even the D.P.H.; but he would always do his best for the society. As a member of its council for many years past he had formed the impression that its activities were multifarious, and the society was now initiating reform in that it was undertaking the organization of post-graduate courses for medical officers of health. In that connexion the society hoped for the advice and co-operation of the Ministry. From what the Minister had said it was evident that they would not hope in vain.

"The Guests"

The toast of "The Guests" was proposed by Dr. F. T. H. WOOD, who endorsed the president's assurance as to the desire of medical officers of health to support the Minister of Health in his attempts to implement his policy. All present would, the speaker felt sure, regret the absence through indisposition of Sir George Chrystal, secretary to the Ministry of Health. Dr. Wood then paid a tribute to the guests present, among them Sir Arthur MacNalty, Chief Medical Officer, Ministry of Health and Board of Education, Sir Ewen Maclean, president, British College of Obstetricians and Gynaecologists, Mr. F. J. Pearce, L.D.S., president, British Dental Association, Dr. G. Lissant Cox, chairman, Joint Tuberculosis Council, Miss Musson, chairman, General Nursing Council, Sir Percy Hurd, M.P., president, Rural Districts Councils Association, and Alderman C. W. Key, chairman, Metropolitan Boroughs Standing Joint Committee. In Sir Cuthbert Wallace, who would respond to the toast, they had the latest of a long line of distinguished presidents of the Royal College of Surgeons, and they took his presence as indicating that whatever branch of medicine they practised they were members of one profession, each directing his efforts to the promotion of the common health. But whereas the work of the surgeon was individualistic, his results obvious, and his reward material, that of the medical officer of health was rather more communal in character, the results less easily demonstrated, and the reward a contented mind. Sir Comyns Berkeley, who would also respond, was chairman of the Central Midwives Board, and as such represented a specialty with which those in the health services were becoming more closely allied. Medical officers of health would undertake their new responsibility for the care of some three-quarters of the domiciliary midwifery of the country all the more hopefully because they knew that the Board was applying itself to an improvement in the quality of midwives.

Sir CUTHBERT WALLACE testified to the change that had taken place in regard to the whole aspect of public health. He was indeed filled with admiration for what nowadays the medical officer of health dealt with and the manner in which he carried out his tasks. He had an opportunity of realizing that the job included that of getting his team working properly, and so impressed had he been by the way in which that was evidently done by one of his former pupils that he had looked up the D.P.H. syllabus of the London School of Hygiene and Tropical Medicine with a view to ascertaining whether there now was a course of lectures on the management of men or, especially, doctors. He found that there was not, and for that reason he took off his hat to medical officers of health.

Sir COMYNS BERKELEY said he realized that the privilege of being a guest on that occasion was due to the fact that, on the one hand, he was chairman of the Central Midwives

Board, and, on the other, he could claim the honour of being a friend of Dr. George Buchan, in whom the society had the best possible representative for its seat on the Central Midwives Board. That Board was indebted to the society and to a number of individual medical officers of health for the observations submitted on the new training rules for pupil midwives. The Board had been able to adopt a large number of those suggestions, and considered, as a result, that its scheme had been materially improved. Rules with regard to refresher courses would be issued in the near future, and he felt confident that the Board would again receive the society's friendly co-operation. Medical officers of health could help a good deal, and he ventured to think that the Board might do something to ease the great burden that rested upon the shoulders of those officers. At any rate, so long as he was chairman of the Central Midwives Board it would be his endeavour to cement and extend the friendship between the Board and the Society of Medical Officers of Health.

TESTIMONIAL TO DR. GUY DAIN

FIRST LIST OF CONTRIBUTIONS

The following is the first list of contributors to the Dain Testimonial Fund, in response to the letter published in the *Journal* of October 17th (p. 781).

	£	s.	d.
J. J. Day (Sandwich)	2	2	0
Sir George Newman (London)	5	5	0
E. Kaye Le Fleming (Wimborne)	5	5	0
Alfred Cox (London)	1	1	0
G. C. Anderson (London)	3	3	0
Sir Farquhar Buzzard (Oxford)	5	5	0
F. A. L. Burges (Birmingham	10	10	0
G. Ainslie Johnston (Ambleside)	1	1	0
W. F. Harvey (Letchworth)		10	0
A. P. Phillips (Chaddesley Corbett, Worcs)	1	1	0
Huntingdonshire Local Medical and Panel Committee	5	5	0
Sheffield Panel Committee	100	0	0
A. H. Burgess (Manchester)	5	5	0
E. K. Mackenzie Tain (Ross-shire)	1	1	0
Balance of Newton Fund (Birmingham)	279	19	11
T. L. Hardy (Birmingham)	2	2	0
*East Lothian Panel Committee (first instalment)	5	5	0
Stockport Local Medical and Panel Committee (first contribution	5	5	0
J. Cohen (Nottingham)		10	6
*Huddersfield Panel Committee (first instalment)	1	1	0
Sir Henry Brackenbury (Hendon)	5	5	0
Paisley Panel Committee	10	0	0
G. A. Wilkes (Birmingham)	10	10	0
*Nottingham Panel Committee	10	10	0
*Birmingham Panel Committee	300	0	0

The total amount received up to November 23rd, 1936, is £777 2s. 5d.

* The following promises of further contributions (in two instalments) have been received:

	£	s.	d.
East Lothian Panel Committee	10	0	0
Huddersfield Panel Committee	2	2	0
Nottingham Panel Committee	21	0	0
Birmingham Panel Committee	200	0	0

Cheques should be made payable to the Honorary Treasurer of the Dain Testimonial Fund (Dr. G. C. Anderson), and forwarded to the B.M.A. House, Tavistock Square, London, W.C.1.

On the recommendation of the Secretary of State for Scotland the King has appointed Dr. Dugald Baird to be Regius Professor of Midwifery in the University of Aberdeen, in place of Professor R. G. M'Kerron, resigned. After graduating M.B., Ch.B. at Glasgow in 1922 Professor Baird devoted himself to obstetrics and gynaecology, holding the posts of surgeon to out-patients in the Royal Samaritan Hospital for Women, Glasgow, visiting obstetrician and pathologist to the Royal Maternity Hospital, Glasgow, etc. At present he is assistant to the Muirhead Chair of Obstetrics and Gynaecology in Glasgow and assistant gynaecologist to the Royal Infirmary.

Reports of Societies

SHORT-WAVE THERAPY

The Section of Physical Medicine of the Royal Society of Medicine on November 20th discussed the subject of "Short-wave Therapy." Dr. GEOFFREY HOLMES was in the chair.

Dr. E. P. CUMBERBATCH contrasted short-wave therapy and diathermy. In diathermic treatment, now more than a quarter of a century old, the frequency of oscillation of the current was about one million per second; in short-wave treatment it was from ten to fifty or even one hundred millions per second. With the latter it was possible theoretically to get the production of heat at a greater depth in the body than by means of the diathermic current. The speaker, however, had been unable to repeat the result of Schliephake's experiments whereby, it was claimed, a rise of temperature was effected in the pelvic organs to the extent of 1.5° C. or more. The therapeutic field with short-wave currents was approximately the same as with diathermy. In an endeavour to make a comparison between the two forms of treatment he had selected certain conditions, including carbuncles, furuncles, adenitis, paronychia, septic wounds, and secondary glaucoma, and had treated some cases by the one method and some by the other. The short-wave method of producing heat in the tissues had the advantage that the electrodes need not be placed in contact with or exert pressure on the tissues, so that heat could be applied over a painful furuncle in the external auditory meatus, or, effectively, in sinuses of the nose, where the external surface was irregular. In some sixty cases of carbuncle the results with the two forms of treatment were quite indistinguishable. In both the pain was quickly relieved and the drainage was rapid, but the short-wave method was more convenient in application. The same was true in the several conditions just named. In varicose ulcer the results were equally disappointing with both methods. A few cases of asthma derived temporary benefit from both.

Physics and Physiology

Dr. H. J. TAYLOR discussed the physics of the subject, showing diagrammatically the two methods by which these ultra-high-frequency currents were applied to the body—namely, by condenser field and by inductothermy. He discussed one by one the various specific effects claimed for ultra-short waves in the literature, and argued that not one of these had been conclusively proved. The only effect was a heating one. A specific effect might some day be proved, but not until considerably shorter waves than were being used at present were available. Dr. Taylor then, together with Sir LEONARD HILL, carried out a demonstration with an excised frog's heart, which was shown, on the application of inductothermy, to beat more quickly, but slowed down at once on being irrigated with cold Ringer's solution. A similar demonstration was carried out with a nerve-muscle preparation. Sir Leonard Hill said that these experiments bore witness that there was no specific effect beyond that of heat with short-wave currents. With inductothermy it had been possible to raise the mouth temperature to 102° or even 103° F.; a similar warmth inside the mouth was not obtained by a hot-water bottle against the cheek or by diathermy or by any other means. It was also possible to warm up the rectum by about 1°.

Dr. C. B. HEALD mentioned the response in cases of sinusitis to short-wave therapy. In one case each attack responded well, but it was followed by other attacks with increasing frequency, and the currents were decreasingly efficacious. Eventually an almost gangrenous appendix was found, and on this being removed there was no further trouble with the sinuses. After quoting another case from which a different inference might be drawn, Dr. Heald said that it was not a question of short-wave therapy, but fundamentally of the underlying diagnosis. If, for example, there was recurrent furunculosis in a patient with high uric acid, that patient could be treated

with short-wave currents indefinitely and there would still be recurrent furunculosis. He combated one remark by Dr. Taylor, that experiments in the laboratory proved the correctness of a hypothesis. There were clinical experiences which were not to be proved in any laboratory, and if laboratory guidance were accepted to too great an extent they were liable to be led astray clinically.

Dr. JUSTINA WILSON said that Dr. Cumberbatch had damned short-wave therapy with faint praise, but after two and a half years of intense work with this new method she considered that as a physiotherapeutic agent it was far superior to diathermy. Given the right technique, it did all that diathermy could do, and did it better, more efficiently, and more cheaply. It also acted well in some conditions where diathermy failed altogether. She had found it far superior to diathermy in gynaecological work, especially in tumours of the adnexa, in some non-inflammatory surgical conditions, and in two or three chronic conditions where diathermy was very feeble or failed altogether. The depth effect was the outstanding difference between the two methods. It was possible to get a rise of temperature of 2° in the pelvis and vagina. Even with the small machines of 300 and 350 watts very good work could be done. One common effect of the two methods was the production of hyperaemia, but in diathermy the current went to the body as a conducting current, and therefore limited and conditioned, whereas the ultra-high-frequency current was no longer a purely conducting one, and could be much better adjusted to the load. She had treated nine or ten tumours of the adnexa, with generally rapid disappearance of pain and prostrating attacks, restoration of normal periods, and improvement in general health. Short-wave therapy had also proved of great help in dealing with vascular diseases, even of a serious nature like arteritis obliterans. Again, in chronic arthritis of the hip-joint short-wave therapy brought about relief of pain and restoration of function within a very short time. Good results were also seen in acute and chronic sciatica and in spondylitis deformans.

Rationale of Short-wave Therapy

Dr. ALBERT EIDINOW said that in dealing with any new therapeutic energy it was well to remember that there was an orthodox physiology and pathology and to stick to it. Many workers who had entered the field of short-wave therapy could justly be accused of attempting to make a new pathology. These minimal stimulations producing miraculous effects, this specific action on bacteria—he simply did not believe it. The action of short-wave therapy was a heat action, heat was a valuable therapeutic agent, and they could rest content that they had an agent which did so effectively bring about heating of the tissues. One word of warning related to the danger of excessive heating, especially when electrodes were put into the abdomen. He had seen two bad cases of intra-abdominal haemorrhage following the application of short-wave treatment, and one patient died. Undoubtedly short-wave therapy, with proper precautions, was an excellent way of giving heat to the body, either locally or in the form of general pyrexia, and that contented him; he asked no more of it.

Dr. P. BAUWENS said that small doses had been criticized—doses which produced just a sensation of warmth in the patient and no more than that. He had used small doses mostly in cases of empyema of the antrum, ethmoiditis, and sinusitis, as well as sphenoid infections, and he could not help feeling that the defensive processes were accelerated. It might be that the defensive processes were initiated by a mild form of irritation, or, already existing, were stimulated by sending up the temperature. It was very difficult to know what share went to the one factor and what share to the other. After applying short-wave (or, as it was better called, ultra-high-frequency) therapy for a considerable time he still felt that there were two reasons for its use: (1) as a substitute for diathermy in view of its greater ease in application and facilitated technique, and (2) as a means of initiating defensive processes.

Dr. W. KERR RUSSELL referred to a number of cases of disseminated sclerosis which he had seen treated by means of electropyrexia; there had been improvement in some patients, but the results had not been nearly so good as some of those recorded in literature. General paralysis and locomotor ataxia had also been treated with success; in rheumatoid arthritis some cases improved miraculously, others showing no improvement whatever. Cases of chorea did excellently with electropyrexia. Gonococcal arthritis would clear up after three or four electropyrexial treatments. The usual temperature in the treatment of gonococcal infection was 106.5° F. maintained for six hours, and this could be carried out with safety. In a number of cases of sinusitis the results were extremely good. Dr. GEORGE GRAHAM referred to five cases of general paralysis treated by electropyrexia at St. Bartholomew's; all had done very well. In three cases of gonococcal rheumatism the results had been striking. In one case with a good deal of swelling the swelling decreased even after the first treatment, although the patient had been ill for eleven weeks.

PUERPERAL SEPSIS

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland held on October 16th, with the president, Dr. J. F. CUNNINGHAM, in the chair, a discussion on puerperal sepsis was held.

Professor A. H. DAVIDSON gave an account of an outbreak of haemolytic streptococcal puerperal infection in the Rotunda Hospital in the spring of 1936; it consisted of fourteen cases with four deaths. It was coincident with a severe epidemic of streptococcal throats in the hospital and in the city, and also with a number of structural building changes taking place in the hospital. Swabs were positive for streptococcal infection in all cases, and blood cultures were taken in eight patients and found to be positive in two—both of whom died. Throat swabs were positive for haemolytic streptococcal infection in seven cases. Ten cases had spontaneous births and in seven cases there was no vaginal interference of any kind. Eight of the patients were in direct contact with droplet infection from a positive streptococcal throat of a doctor or nurse. Three patients developed peritonitis, of whom two died and one recovered. The abdomen was opened and drainage tubes inserted in each of these three patients. None of them had a positive blood culture. Three patients developed insanity.

The treatment consisted in polyvalent antistreptococcal serum, antiscarlatinal serum, and intrauterine glycerin where the lochia were purulent or fetid, and routine nursing measures. Prontosil was used in the last case only, with satisfactory results. It was not available in the earlier cases. The cases were isolated in a large ward with separate staff, crockery, dressings, etc. All the nurses, students, and staff of the hospital had their throats swabbed, and any with positive streptococcal infection were sent home or off duty. Vaginal examinations were completely stopped and all operative intervention cut down to a minimum. Masks were worn in the labour ward and puerperal wards. The importance of spray and droplet infection was well borne out in this epidemic, and shows the necessity of early recognition and segregation of those with infected air passages.

Dr. R. M. CORBET reported an outbreak of six cases of puerperal infection in the Coombe Hospital at the beginning of June, 1936. In one of these cases streptococci were grown from the blood and in two from the uterine swabs. In the four others, although streptococci were seen in the smears from the uterine cavity, no organisms could be grown aerobically. These four patients formed large quantities of pus in the uterine cavity, yet no growth could be obtained.

Treatment was with prontosil, by intramuscular injection and by mouth, and by intrauterine douching where any quantity of pus was found in the uterine cavity. All patients survived. No conclusion as to the origin of the outbreak was reached, but at the same time there was one patient with an acute streptococcal

throat, three nurses off duty with sore throats, and one nurse with scarlet fever, and haemolytic streptococci were found in the throats of one assistant and fourteen nurses. The patients who were infected had all been in contact with at least three nurses carrying haemolytic streptococci. The usual precautions of isolation and the elimination of active streptococcal carriers were taken.

Dr. J. S. QUIN read a note on an unusual case of puerperal infection, and Dr. F. W. DOYLE and Dr. R. V. MURPHY described a case of subacute endocarditis recently encountered by them.

General Discussion

Dr. G. C. DOCKERAY said that during the epidemic at the Rotunda Hospital the rule had been introduced of taking a swab from anyone in the hospital who had the least sign of a cold in the head or a sore throat, and this would be continued in the future. It was very important, however, to see that no nurse was allowed back on duty in the hospital until a release swab had been taken. Dr. Colebrook had recently stated that in his experience about 50 per cent. of cases died of streptococcal septicaemia, in many instances contracted from sore throats. It should be remembered that haemolytic streptococci might be present in the air. At the Rotunda Hospital no anaerobic cultures had been done, as it was obvious that they were dealing with an outbreak of haemolytic streptococci. There was more difficulty about taking blood cultures than about taking throat swabs, as cultures had to be put into anaerobic media. He was of opinion that in the next copy of the rules of the Central Midwives Board sore throat should be specifically mentioned. Streptococci should be put up on broth and on to the sugar trecolose, and if it fermented trecolose it probably was not pathogenic. In some protracted cases in which one was uncertain how to proceed he thought too little therapeutics was a mistake.

Dr. C. J. MCSWEENEY said he saw a good many cases of puerperal sepsis in Cork Street Fever Hospital. Since September, 1934, they had treated there fifty-two cases. Twenty were cases of pure septicaemia; of these eight died. In all the fatal cases a pure culture of haemolytic streptococcus was obtained from the blood. There were two cases of pyaemia, both of which recovered. Of the thirty cases that remained none died.

Dr. J. MCGRATH, Dr. BETHEL SOLOMONS, Dr. W. P. O'CALLAGHAN, and Dr. W. H. ASHMORE all contributed to an interesting discussion, to which the openers replied.

HORMONES IN OBSTETRICS AND GYNAECOLOGY: THE PRESENT POSITION

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on November 20th, with Mr. CLIFFORD WHITE in the chair, a discussion was held on the present position of hormones in obstetrics and gynaecology.

Scientific Aspect

Professor E. C. DODDS suggested that the discussion be confined to those hormones commercially available which could be obtained in an accurately standardized and stable form. The following were included: oestradiol, progesterol, testosterone, gonadotropic hormone, thyroxine, adrenaline, vasopressin, oxytocin, insulin, and parathormone. The use of these substances was well defined. One point of practical importance was the possibility of myxoedema occurring in association with gynaecological conditions such as amenorrhoea; in many cases the failure or disappointing result of treatment with oestradiol and progesterol was due to myxoedema. It was always advisable to estimate the basal metabolism and restore it to normal before beginning specific treatment with hormones. The clinical use of hormones was commonly described in such terms as 5,000 units, but the quantities were really very small, and it was to be hoped that mouse and rat units would disappear, and that the substances would be prescribed by weight (milligrams). All the substances had been accurately characterized chemically, and were substances of crystalline structure whose constitution was known. It had been pointed out that certain of these sex hormones bore a resemblance in chemical structure to carcinogenic hydrocarbons, and it was suggested that this might constitute some danger. It could be stated definitely, however, that oestrone and its derivatives had no carcinogenic activity when tested in the same way as the carcinogenic hydrocarbons were tested, and so far as similarity of structure was concerned the carcinogenic hydrocarbons were much more desaturated. The production of carcinomata by injection of oestrone in susceptible animals had been described, but these experiments bore no relation whatever to the physiological employment of the hormone, and it would be unjust and unwise to restrict the use of the hormone on this account. It had also been advocated that before treatment an analysis of the excretion of hormones in the urine should be undertaken, and that the subsequent prescription should be based on the results of such analysis. His personal opinion was that this must prove unsatisfactory seeing that there were no standard methods either for the expression of the excretion of these hormones or for the interpretation of any abnormalities. A great deal of work must be done on the excretion of hormone in the urine of normal persons before the abnormal could be interpreted. The clinical use of the gonadotropic hormones had been widely advocated. These preparations were used to stimulate the ovary in cases of amenorrhoea and other conditions, but it appeared to him from a study of the literature that the results obtained had not been as successful as with oestradiol and progesterol. It was perhaps not realized by the majority of clinicians that sex hormones existed commercially and could be purchased in a form in which the activity and composition were absolutely constant. The labours of the biologists and the chemists had provided the clinician with these substances, and it was impossible to ignore them.

Clinical Aspect

Dr. H. GARDINER-HILL, in discussing the clinical aspects, said that so far as they had gone the clinical results had been promising. It must be remembered that all endocrine therapy was purely substitution therapy. If, for example, a case of myxoedema were treated with thyroid extract, all the symptoms could be removed in the course of a few weeks, but nobody should be disappointed if, when leaving off thyroid extract, the symptoms of myxoedema returned. There might occasionally be cases of thyroid deficiency in which there was a temporary loss of function in the gland, and if thyroid treatment were instituted the gland might be relieved and recover in due course; but the majority of cases of thyroid deficiency were cases in which an atrophy of the gland had occurred and thyroid treatment had to be continued for the remainder of life; in other words, thyroid treatment was substitution therapy. The same remarks were applicable to insulin. In the same way with the sex hormones, with oestrin and corpus luteum it was possible to reproduce the uterine cycle even in a castrated woman, but what could not be done was to make that uterine cycle repeat itself because it was under the control of the anterior pituitary. The substances on the market were not the anterior pituitary gonadotropic hormone but substances from the urine of a pregnant woman, substances closely related to the anterior pituitary hormone, but not having the same effect.

Oestrin was essentially the growth hormone of the sex apparatus; the corpus luteum hormone was part of the mechanism of pregnancy, responsible to some extent for nutrition and the fixation of the embryo, and, he believed, played a part in the formation of the membranes; it also had some function in inhibiting the contractility of the uterus. The gonadotropic hormone from pregnancy urine contained chiefly the luteinizing fraction. The anterior pituitary hormone itself was probably a follicle stimulator and concerned with ovulation. Turning to disorders of

menstruation, Dr. Gardiner-Hill said that the results of treatment were notoriously unsatisfactory. Metrorrhagia was one of the conditions responsive to endocrine treatment. It appeared especially in girls at puberty, and was often due to a cystic condition of the ovaries which resulted in a hypertrophied endometrium. The response to treatment with the corpus luteum hormone was often dramatic; he believed it responded also to the gonadotropic hormone. As for treatment with these extracts in dysmenorrhoea, in one type in which the uterus was undeveloped it was suggested that treatment with oestrin should be instituted, and he had seen several cases in which this treatment had been successful. Another type of dysmenorrhoea which was also said to benefit from endocrine therapy was that in which the corpus luteum hormone was used to inhibit the undue contractility of the uterus. It was extremely difficult to assess the results of endocrine therapy in a condition like dysmenorrhoea because the psychological condition was so important. As for sterility, there were a number of cases of purely thyroid origin, usually associated with normal menstruation, which could be successfully treated with thyroid extract. It was important in all cases of sterility to consider a thyrogenic factor. Personally he had never seen any results from treatment with oestrin in sterility. Presumably the majority of the cases of sterility were due to failure of ovulation, which depended apparently on the anterior pituitary. Disorders of pregnancy, particularly repeated miscarriages and abortions, were in some cases of thyroid origin, and could be successfully treated with thyroid extract. Other cases might be due to a deficiency of the corpus luteum. He had seen three or four cases which had gone through pregnancy after repeated miscarriages, the treatment being with the corpus luteum hormone. In the group of conditions at the climacteric he thought there was again a definite field for endocrine therapy. It was a valuable weapon in the treatment of such disturbances. In the field of general medicine these hormones were particularly valuable in allergic conditions, especially migraine.

Local and Systemic Treatment

Dr. P. M. F. BISHOP said that there were two important general principles to bear in mind: (1) that in endocrine deficiency there had to be considered not only defective secretion of the endocrine gland, but also defective utilization of that secretion by the tissues which it was its normal function to stimulate; (2) that a sharp differentiation must be made between local treatment and systemic treatment in evaluating the results of endocrine therapy. Often local treatment was good and systemic treatment disappointing. By local treatment he meant the administration of some hormone extract which would act directly on the tissue the abnormal behaviour of which was giving rise to the symptoms; and by systemic treatment, the administration of some endocrine preparation designed to readjust the disordered balance of the endocrine system as a whole. In menorrhagia the contrast between the results of local and systemic treatment was striking. Local treatment was satisfactory, but temporary in its effect, which was to lower the level of oestrin utilization by the endometrium. Another example of local treatment was the administration of oestrin to overcome the abnormal quiescence of the uterus in a case of retention of dead foetus. Treatment in this and other cases as, for example, prophylactic injections of hormone preparation during the early months of pregnancy where there had been previous miscarriages, and in certain cases of dysmenorrhoea associated with abnormal spasmodic uterine contractions, seemed mostly satisfactory. Hormone therapy had established a position in obstetrics and gynaecology, but there was still a great deal to learn, and further advance would be facilitated only by critical evaluation of the scope and limitation of past and present achievement, and might be retarded by unreasoning enthusiasm for methods of treatment for which there was no scientific foundation and equally by an obstinate scepticism in regard to all forms of "new-fangled" treatment.

Reasons for Relative Failure

Mr. T. N. A. JEFFCOATE said that the present position of hormones in gynaecology and obstetrics could be summarized in two statements. In the first place, as a result of the recent advances which Professor Dodds had emphasized, theoretical knowledge had increased and was still increasing so rapidly that it was difficult for a mere clinician to keep pace. Secondly, the practical application of endocrinology was extremely limited and disappointing, though not without promise for the future. Professor Dodds had suggested that it was the clinician's fault that the results were disappointing. That was not true. The endocrinologist, instead of sitting back and blaming the clinicians for the bad results, should investigate such results and explain them, as he was quite certain there were other factors not known which accounted for them. The administration of oestrin was not always successful, not because it was not given in the right way, but because the body was able to inactivate that particular hormone, and the more of it that was given the more the body inactivated it. The treatment of functional uterine haemorrhage by means of gonadotropic and corpus luteum hormones was frequently regarded as one of the triumphs in this field. A table which he had prepared suggested that while the treatment was useful in some cases it was more generally useless. His Liverpool figures related to seventy-nine cases, of which fifty were "cured," fifteen were failures, and there was a doubtful result in fourteen, but there had been seventeen cases of relapse, giving a percentage of cure of 63.4. From literature he had collected 510 cases, with 356 "cures," ninety-three failures, and fifty-six doubtful results, but relapses were "numerous." He did not wish to decry the adoption of this treatment in these cases of haemorrhage, but merely to insist that the results were often bad, and that it was essential to make careful choice of patient suitable for this type of therapy. He also gave particulars of results of hormone administration to induce induction of labour or abortion in those cases in which the foetus had died *in utero*. If a dead foetus was retained *in utero* its spontaneous expulsion could be brought about by increasing uterine sensitivity with oestrin. He mentioned twelve cases of intrauterine death of the foetus before the twenty-eighth week, in seven of which the treatment had been successful, and fifteen cases after the twenty-eighth week, all of which had been successful. The average duration of treatment in the successful cases in the first category was 140 hours, and in the second, ninety-seven hours, and the average dose was about 2,000,000 international units. As for the treatment of uterine inertia by means of oestrin, the number of cases was too small for definite conclusions, but he had gained the impression that 50 per cent. of the patients suffering from this serious obstetrical difficulty benefited. Out of thirty-two cases there was definite clinical improvement in sixteen, doubtful clinical improvement in five, and no response in eleven. If prolan A could be demonstrated in the urine of a patient suffering from amenorrhoea it usually implied that the condition was due to primary ovarian failure as distinct from primary pituitary failure, a distinction which obviously bore on the kind of endocrine treatment which should be instituted.

General Discussion

Mr. T. N. MACGREGOR said that the knowledge concerning the nature of the hormonal imbalance producing endocrine dysfunction during the reproductive period of life was still very meagre. Hormone therapy in this field should be successful, but success depended on the careful evaluation of clinical findings, including microscopical examination of the endometrium and measurement of the length of the uterine cervical canal. Some cases were due to early failure of follicular ripening, others to failure of full uterine development, and there was a group of cases in which prolonged oestrin stimulation of the endometrium led to hyperplasia resulting in irregular bleeding. Amenorrhoea was also a condition requiring very careful investigation into the aetiological

factors producing the hormonal imbalance. Where there was a definite history of psychological stimulus no treatment was necessary unless the patient was worried about the cessation of menstruation. In selected cases from the large group with no such history there was a basis for successful hormone therapy. When cases of endocrine dysfunction were more fully investigated the accumulated data would permit a clearer understanding and help to raise endocrine therapy from its present state of empiricism.

Mr. MALCOLM DONALDSON urged the need for a centre with proper facilities to which these cases could be sent. Mr. EARDLEY HOLLAND emphasized the value of careful record-keeping, and showed charts on which the dates of menstruation and any abnormal circumstance were graphically recorded. Dr. J. W. HUNTER mentioned the cost of hormone treatment. In Manchester in sixty-two carefully selected cases the aggregate cost of the treatment was £800. In twenty cases of secondary amenorrhoea fourteen were temporarily cured, but in only two, apparently, was the return permanent. In seventeen cases of scanty menstruation associated with dysmenorrhoea or sterility eleven showed no improvement after prolonged treatment, in six there was some slight success, but in no case was the dysmenorrhoea affected, and in no case of sterility did pregnancy result. Professor JAMES YOUNG said that one word of warning was necessary. In one case a woman who had been treated continuously from the early months of pregnancy passed out of the immediate supervision of the hospital, taking with her the prescription, which her doctor went on giving her right up to term and beyond it. She went on to the tenth month, and gave birth to a 13¼ lb. baby, losing the child and nearly losing her own life. Endocrine therapy had proved its value in menopausal conditions. Recently he had seen two cases which responded very well to oestrin therapy for chronic vulval irritative states after the menopause. One had 800,000 units and the other 600,000. After treatment they complained of marked pain and swelling in the breasts, and in one case the woman, aged 63, was naturally rather alarmed at the marked distension in the mammary area. Dr. J. CHASSAR MOIR suggested that patients should not be subjected to this line of treatment unless the condition had persisted for not less than six months, and a cure should not be recorded unless the condition yielded to relatively few treatments in a relatively short time. Otherwise the exact value of the treatment was likely to be obscured by other factors.

Professor DODDS said that he had made no accusation against the clinicians, as Mr. Jeffcoate rather implied. All he had said was that there was an excuse for not knowing how to use the preparations because they were so recent, but no excuse for not trying them. Dr. GARDINER-HILL, in reply to the president, said that he had seen very little effect on the hair distribution in females after the administration of oestrin; the chief changes had been in the breast.

India

All-India Institute of Hygiene

The wide scope of activities of the All-India Institute of Hygiene and Public Health, Calcutta, is well indicated in its annual report for 1935, in which research work and teaching are described relating to public health measures of all kinds, biochemistry and nutrition, the control of various diseases, maternity and child welfare, and inquiries promoted by the Indian Research Fund. In 1933 a professorial staff was recruited, and the work of post-graduate training in all branches of public health has since been much intensified with increasing attention to field work, the importance of which has been more generally recognized in the last few years. The museum and library equipment of the Institute is being improved. Reference is made in the report to various important investigations now being conducted. A statistical inquiry is being made into the incidence of cholera in Bengal, and a field inquiry is in progress in a group of sixteen villages. Evidence has been obtained that the hypothesis of case-to-case infection will not suffice to explain the maintenance of infection during the non-epidemic season. Carrier cases provide a reservoir of infection, and relapses in them are relatively frequent; the average interval between relapses was sixteen days and the maximum was forty-two days. It seems likely that healthy persons may continue as carriers for fairly long periods, and that relapses may be sufficiently frequent to establish an association between the carrier state and the prevalence of cholera in the community. Inquiries on the same lines have been conducted into the prevalence and transmission of epidemic dropsy in Bihar and Orissa, Calcutta, and Assam, and the report discusses the evidence forthcoming in connexion with the three main theories of aetiology: the rice theory of Acton and Chopra; the infection hypothesis, which specifies that the disease spreads from patient to patient; and the possibility of some deleterious substance having been introduced into the food through the vehicle of mustard oil. The data so far obtained do not support the rice theory. It is pointed out that if the production of a water-soluble toxin was responsible for the disease the incidence should be least among those sections of the community which customarily throw away the water in which the rice had been boiled, but the reverse seems to be the case. The theory of bacterial invasion as the cause of opacity of the grain seems similarly to be open to doubt. While there is evidence that in some of the centres of investigation the first few cases of the disease were either imported or developed within a week or so of contact, there is also evidence from all these centres that the lower classes of people who worked in the affected households, and must therefore have had abundant chances of contact, escaped almost without exception. No evidence has been obtained pointing to the presence of a special deleterious substance in mustard oil, although in one district of South Calcutta no cases occurred among persons who did not use this in their food.

Cancer in India

The July issue of *Sankhyā*, the Indian Journal of statistics, contained a survey by F. L. Hoffman of cancer in India, Persia, and Ceylon, and a reprint of this article has been issued by the Statistical Publishing Society, Calcutta. Dr. Hoffman, who is consulting statistician to the Biochemical Research Foundation of the Franklin Institute in Philadelphia, Pennsylvania, believes that cancer in its various forms is very rare throughout India, the average mortality rate probably not exceeding 20 or 25 per 100,000 of the population. Diligent research, he states, would improve the statistics considerably, but difficulties arise from the existence of the caste system and the seclusion of women who can but seldom be submitted to thorough examination. Post-mortem examinations are not easily obtainable, moreover, owing to the opposition of the native population. This is unfortunate, since India offers unusually good opportunities for inquiries into the aetiology of this disease, particularly as regards its possible relation to diet and nutrition. Dietary habits are exceptionally restricted, and Dr. Hoffman pleads for every encouragement to be given to further research. The peculiar nature of kangri burn and betel nut cancer, he remarks, deserves more extended study, but important conclusions may be forthcoming soon. He thinks that a comprehensive survey of cancer in India might well be organized, and the Indian Research Fund Association, the Calcutta Public Health Institute, and other similar agencies could give valuable assistance. A study of the disease in the principal public hospitals might be inaugurated under the direction of the Inspector-General of Civil Hospitals, and the leading universities might unite in a scheme of co-ordinated research. Cancer of the breast appears to be very rare in Calcutta and

Bombay. The general cancer death rate seems to be higher in South India, as compared with Central and North India, owing to the relative prevalence of buccal cancer, the mortality rate for which in Madras constitutes 17.3 per cent. of the total death rate. This form of the disease is also common in Ceylon and Colombo, where gastric cancer is very rare. Sir Leonard Rogers, in 1925, showed that all types of tumours might occur in India, but difficulties in drawing conclusions as regards the comparison between the more and the less civilized races are many. The different age distributions of the populations in India and Europe help to explain the relatively lower incidence of malignant tumours in Bengal and other parts of India. Dr. Hoffman thinks that there is some evidence that races which live habitually on a vegetable dietary are less liable to malignant tumours than those who live on a diet in which meat predominates. In Persia cancer appears to be more common.

England and Wales

Manchester Joint Hospitals Board

Much of the first annual report of the Manchester Joint Hospitals Advisory Board is devoted to an outline of how the Joint Board came into existence as a direct result of the obligation laid upon local authorities in Section 13 of the Local Government Act, 1929, to consult with voluntary hospitals concerning the provision of hospital accommodation. The board is representative of the council of the city of Manchester, as controlling the municipal hospitals, the Hospitals Council and Statutory Committee, which is concerned with the voluntary hospitals, and the University of Manchester. It acts solely in an advisory capacity, but in the twelve months which have elapsed since its first meeting in October, 1935, it has done much valuable work. The scheme for the appointment of consultants to the municipal hospitals and of an advisory panel has been put through. The panel's recommendation that Professor G. R. Murray (in medicine), Professor E. D. Telford (in surgery), and Professor Daniel Dougal (in gynaecology) should be directors of services to the municipal hospitals has since been adopted by the Public Health Committee of the City Council. A special subcommittee considered the organization and use of the voluntary and municipal hospitals in air raids. Its proposals, which the Joint Board approved in principle, are that the voluntary hospitals in the centre of the city should be casualty clearing stations, to which injured persons should first be taken. Should these persons require continued hospital treatment they should be removed to base hospitals at Booth Hall, Crumpsall, and Withington hospitals, with, possibly, additional accommodation in school premises. All hospitals should take such precautions as are necessary to provide that at least one portion of every hospital is immune from gas infiltration, and the various specialist hospitals should have the necessary equipment for first-aid treatment when used as casualty clearing stations. A committee has been appointed to consider the report of the British Medical Association Committee on Fractures, and the general unification of orthopaedic services in Manchester, and an investigation is being made into the possibilities of reducing waiting lists.

Royal Dental Hospital of London

The Royal Dental Hospital of London held its twenty-seventh annual clinical "At Home" on November 21st, and this was followed by the annual dinner of the staff and past and present students. About 300 visitors attended the "At Home," when instructive exhibitions were arranged in the conservation and appliance rooms, the mechanical laboratory, the *x*-ray department, and the museum. Mr. C. Bowdler Henry showed enlarged radiographs illustrating the results of prophylactic enucleation of mandibular wisdom tooth follicles, a subject on which he spoke recently before the Medical Society of London (*Journal*, November 21st, p. 1044). Dr. R. H. Leaver showed a number of cases recently treated in the electrotherapeutic department. At the dinner Mr. J. H. Badcock presided, and the guests included Sir William Willcox and Mr. F. J. Pearce, president of the British Dental Association. Mr. Badcock, in proposing the health of the hospital and school, mentioned that it was just fifty-one years since he entered the school in Leicester Square. The laboratory at that time was down in the basement, and in the basement it was the ill fortune of the dresser in the gas room to have to spend his afternoon making gas for the following day's consumption. It was made by heating ammonium nitrate in a glass flask, altogether a tedious business. Local anaesthetics at that time were unknown. Cold was applied, the gum was pinched, and devices of that kind were used, also chloroform was painted over the teeth which were about to be extracted. The mouth mirror was kept in the waistcoat pocket to ensure that it would be warm and not steam, and he remembered a demonstration at a meeting of the British Dental Association in those days, when the president produced his forceps from his trousers pocket! The man to whom he himself had been articled used to say that one of the great advantages of the dental profession was that it cost only about £5 to set up in practice. That was before the supplying houses had managed to persuade the budding dentist that to achieve success he must fill his surgery with gadgets costing hundreds. As for the curriculum, in those days one served an apprenticeship of three years to a dental surgeon. At worst it was a farce, but at best it afforded an education better than could be obtained at a hospital. *X* rays had not then been discovered, and the word "orthodontics" had not been coined. Such research as was done was carried out by private individuals at their own expense. Dentistry, in fact, was not much more than a craft. He contrasted the position with dentistry to-day, ever more closely connected with medicine, and no small factor in the progress had been the Royal Dental Hospital and School and its generations of brilliant staff and students. Mr. H. Stobie, the dean of the school, replying for the sixteenth year in succession, gave an account of the work of the year and the domestic happenings. Mr. A. T. Pitts, in an entertaining speech, proposed the health of the guests, to which Mr. F. J. Pearce responded. He himself, he said, was the product of a rival school, but at Guy's they fully realized what they owed to the Royal Dental Hospital. The founder of Guy's Dental School, Mr. Pedley, was a student at Leicester Square, as were some of its finest teachers, including the chairman of that evening, for Guy's looked upon Mr. Badcock still as one of its own men. Mr. Badcock was shortly leaving for South Africa to attend the congress there as representing the British Dental Association, and in the name of the company he wished him a happy visit. The toast of "The Chairman," by Mr. N. J. Ainsworth, completed the proceedings.

Leeds School of Medicine

The annual dinner of past and present students and members of the staff of the Leeds School of Medicine was held on November 19th at the Hotel Metropole, Leeds. The chief guest of the evening was Dr. T. Wardrop Griffith, emeritus professor of medicine, and in proposing his health Dr. G. le Fleming Burrow said that Dr. Griffith was among those men to whom the school owed its present greatness. He became associated with medicine in Leeds fifty-three years ago, and the anatomical department owed its foundation to his industry and enterprise. In responding to the toast of "The Staff," Mr. J. F. Foster said that the Leeds School of Medicine has lost, by the death of Lord Moynihan, its most brilliant member. He would be remembered by them perhaps not so much as a surgeon, great though he was, but as the friend and champion of the School and its tradition. Dr. J. Dick proposed the health of past and present students, to which Mr. Digby Chamberlain replied; and Dr. C. W. Vining proposed the health of the president, Mr. P. J. Moir.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

Blood Transfusion

SIR,—I would like to congratulate and thank Mr. P. L. Oliver (*Journal*, November 21st, p. 1032) for his very interesting contribution. Far from any "lifting of eyebrows"—to which you refer in your leader on the subject of blood transfusion—I feel that most of us would welcome letters from laymen with special knowledge to contribute. Surely the day of the medicine-man (and "witch-doctor") is past, and with the general spread of scientific knowledge there should be no more impertinence in a layman discussing derangement of the knee-joint with a surgeon than in the surgeon discussing carburettors with a motor engineer. There are three points raised which are of special interest to me.

1. Concentration and amount of sodium citrate solution.—Working with Robertson in France I used 3.8 per cent. potassium citrate, then 3.8 per cent. sodium citrate, then various strengths, and now I am using 8 c.cm. of 50 per cent. sodium citrate to a pint of blood; this last solution is in 4-c.cm. ampoules, and is very convenient. It appears to be as good as any of the other strengths, whatever theoretical objections there may be to it. It tends, however, to crystallize out, but the crystals dissolve easily on warming the ampoules.

2. Apparatus.—Innumerable sorts on the market are mostly modifications of Robertson's original one; each appears to be designed to overcome some defect in the others. After having tried several forms of apparatus I have found the ordinary measure for receiving, and a tube and funnel for giving, to be much the easiest and most reliable method.

3. Laying down blood.—During the first battle of Gouzicourt, near Cambrai, Robertson (an American doctor from Harvard, whose skill and untiring devotion to the British wounded gained for him the greatest affection and respect from us all) made a "blood dump." As far as I remember, 20 pints from No. 4 (Moss) donors were laid down. The method adopted was that a Winchester bottle containing 800 c.cm. of 5.4 per cent. glucose was autoclaved at a temperature of 105° C. (at 3 lb. pressure) for thirty minutes. This was allowed to cool in the autoclave without the latter being opened, so as not to cause concentration of the solution, the bottle being closed by a wool plug. 350 c.cm. of 3.8 per cent. potassium citrate sterilized separately was added to this, making a bulk of 1,150 c.cm. Into this was run 500 c.cm. of blood, making a total of 1,650 c.cm. of solution in the bottle. The bottle was left to settle in an ice chest for four or five days; when it was desired to use this blood the supernatant fluid was siphoned off and the blood made up to the original 500 c.cm. with normal saline, or, if desired, up to 800 or 900 c.cm. The Winchester was marked in 100-c.cm. divisions, which were only approximate, being marked in glass pencil, but the percentages of the solutions were accurate. This blood was all used up in the first day of the battle; there were no ill effects.

In times of peace the difficulty of laying down blood is more difficult, as one does not know when it will be wanted, and without more knowledge one would not like to keep it for more than a week or two. If, therefore, each hospital laid down blood much waste might occur, but a supply for all hospitals in a district might be held at one spot to overcome this difficulty. I think that a conference such as Mr. Oliver suggests would be most useful to all of us who are interested in this subject.—I am, etc.

Hove, Sussex, Nov. 23rd. HUGH J. MCCURRICH.

Acute Rheumatic Meningitis

SIR,—I read with much interest Dr. Geoffrey Bourne's account of a case of acute rheumatic meningitis (*Journal*, November 21st, p. 1017). It appeared to me a valuable contribution to the subject. It was amusing to find that when it came to references there was, as is usual in our country, a preference for foreign "culture" media rather than for home ones.

If Dr. Bourne will refer to *Researches on Rheumatism* (pp. 239–243) he will find that in the *Lancet* of December, 1905, Paine and I described a very interesting case, which we fully investigated because it was fatal, and which is republished in this volume. I readily admit this book is a rare one, and only to be found in such out-of-the-way nooks of medical literature as the Royal Society of Medicine, the Medical Society of London, and the Royal College of Physicians libraries. Nevertheless English literature on rheumatism is not so stocked with complete if perhaps mistaken contributions to the subject that I think we can afford to pass over English efforts, even if they are thirty-one years old.

I can readily understand that in his case cultures were negative, for in the present phase of the study of acute rheumatism they always are, allergy being more in favour. Our case was a boy of 13 and not alcoholic; but we had no doubt as to the rarity of the condition, and though it was thoroughly investigated our contribution was a tentative one, open to criticism, but aroused neither interest nor criticism.—I am, etc.,

Bath, Nov. 21st. F. JOHN POYNTON, M.D.

Coronary Survival Club

SIR,—By universal agreement all who had the privilege of being present most thoroughly enjoyed the Buckston Browne dinner on November 12th (*Journal*, November 21st, p. 1064). The opportunity of meeting some of the research workers after dinner and of discussing their exhibits very much enhanced the enjoyment. This part of the evening presented an opportunity for informal talks of great interest and value. The specimens shown by Mr. Laurence O'Shaughnessy where the omentum had been stitched to the cat's heart to supply an additional circulation after ligature of the coronary artery elicited very great interest, and especially from some members of the company who had themselves been victims of coronary mischief.

It has occurred to me that there is a brilliant opportunity for further research if those who have suffered from this malady in some respect and have recovered so that they are able to enjoy a degree of their normal activity would constitute themselves a "Coronary Survival Club." They might carefully record their symptoms and send them as a provisional report to be cared for by the conservator at the College, at the same time arranging that at their demise the results of a post-mortem examination should be recorded and sent to the same quarter. In this way a great deal of valuable information would gradually accumulate and might help to settle many problems yet unsolved. At present, as the discussions showed after the dinner, it is quite clear that the factors concerned with coronary disease are very uncertain and ill understood, and the correlation, which the method I have suggested would provide, should at least help to clear up this uncertainty. We have a great example in the case of John Hunter, who himself recorded his symptoms and in whose case the results of the post-mortem, made by his brother-in-law, Everard Home, are already available.—I am, etc.,

British Post-Graduate Medical School, London, Nov. 17th. G. GREY TURNER.

A Hypothalamic Menstrual Centre

SIR,—In a leading article entitled "Some Endocrine Puzzles," published in the *Journal* of November 14th (p. 978), there was a reference to what was called Theobald's theory of a hypothalamic centre responsible for controlling menstruation. This theory was propounded by Dr. G. W. Theobald in an article which he contributed to the *British Medical Journal* (1936, i, 1038). As a matter of historical interest I should like to point out that the theory was formulated by me in an article entitled "The Physiology of Menstruation; its Relationship to Fundamental Uterine Bleedings," which I contributed to the *British Journal of Obstetrics and Gynaecology* (1932, xxxviii, No. 4). Theobald does not make any reference to this article. I am sure, however, the omission was not deliberate.

Let me quote from my paper a few passages which summarize the arguments which I advanced in favour of the theory.

"From this analysis we conclude that the complicated mechanism responsible for the periodicity of the human menstrual cycle transcends but does not exclude the influence of the pituitary and ovarian hormones. That a nervous mechanism *with its centre probably situated in the hypothalamus* is more fundamental than the pituitary–ovarian hormones as the controlling agency in human menstruation is largely based upon theoretical considerations.

"Is there any experimental or clinical evidence in support of this view? It is well known that ovulation of the cervix by a thread or a glass tube in animals as well as discission in women causes changes in the ovaries. This cannot be due to an irritative hyperaemia; for a follicle, as is well known, will rupture in an ovary at a distance from the irritable focus."

I then referred to observations made by myself and other clinicians, notably Professor Young, relevant to my thesis. "Clinical and experimental evidence," I concluded, "seems to indicate that a *nervous* hormonal mechanism is responsible for the menstrual rhythm, and that some of the functional uterine bleedings may be due to a disturbance of this mechanism."

I am not aware that the theory of a hypothalamic centre responsible for the periodicity of the human menstrual cycle has seen the light before the date of my paper.

In a paper entitled "Menstruation and Menstrual Disorders" which I contributed to a recent number of the *British Journal of Obstetrics and Gynaecology* I indicated the newest conception of the relation between the pituitary and ovarian hormones based upon the experimental work of Hisaw, Moore, and others. I drew attention to the flood of light which this new conception throws upon the mechanism which Nature employs to maintain the normal menstrual rhythm. The truth of the theory propounded by me in 1932, and independently, it would appear, by Theobald in 1936, only proves that the mechanism responsible for the human menstrual rhythm is more complex than we think.—I am, etc.,

Infirmary House, Kildare, Nov. 20th. D. J. CANNON.

Substances Promoting Cell Growth

SIR,—The correspondence which has been carried on under the above title in your columns has been largely concerned with subjects on which I possess no special competence to express an opinion, but as I was, I believe, originally responsible for the suggestion that work on embryonic organizers may throw some light on the induction of malignant growth,[1] I hope I may be allowed to mention some points raised by Dr. Cramer's recent contribution (*Journal*, November 14th, p. 997). In this letter Dr. Cramer discusses "uncontrolled growth" and succeeds in clarifying this concept very considerably by pointing out that in the induction of a carcinoma two phases can be distinguished. First, there is an increased growth of essentially normal cells, leading to a hyperplasia which, though it disappears when the inducing stimulus is removed, is "uncontrolled" in the sense that the mass of tissue does not form part of the normal shape of the organism. Later an apparently irreversible change occurs within the cells, giving rise to the true malignant cell, which is distinguished from the normal cell by its "freedom from control by the organism to which the normal cell is subjected." In my note mentioned above[1] I adopted an essentially similar criterion of malignancy: "the fundamental fact about cancerous tissue is that it has escaped from the normal growth-controlling agents of the body." It was then on a basis of the same criterion as that used by Dr. Cramer that I suggested that the induction of a cancer can be homologized with the induction of an embryonic tissue.

Dr. Cramer, on the other hand, states that "in the process of carcinogenesis it is only the first phase, in which the carcinogen acts on normal cells and produces a hyperplasia, that corresponds to the action of the same carcinogen when it acts in the embryo as an evocator. The second phase, the intracellular change which constitutes malignancy, is a separate phenomenon, for which there is no biological analogy." Now it seems to me that if we wish to make a distinction between growth and differentiation, as surely we must, it is precisely in embryonic development that differentiation occurs, and to speak of this differentiation as a hyperplasia (that is, increased growth) is to deny any reality to differentiation as a biological phenomenon. Not only is one justified in denying that an embryonic differentiation is a mere hyperplasia, but one can state that the two phenomena are not very essentially connected; examples of normal differentiation with much reduced growth rate are legion in the literature of explantation and tissue culture, while the work on the chemical nature of the evocator has provided several examples of induced metaplasia unaccompanied by differentiation.[2] Both in the induction of an embryonic tissue and in the induction of a carcinoma something more is involved than the stimulation of hyperplastic growth, and it is in respect of this something more that I suggest the two processes may throw light on one another. Dr. Cramer, in fact, in his next paragraph admits this very contention, which he had earlier seemed to deny; he states that "it is conceivable that the type of malignant cell is determined in a manner similar to that which determines the type of an embryonic cell."

The fundamental similarity between embryonic induction and tumour induction rests on the fact that in both cases a change of cell type is brought about, and is independent of whether, as Dr. Cramer suggests, the change in tumour induction affects a few cells only, or whether the tumour-inducing agent is a chemical carcinogen alone or in combination with other substances, or a virus. I do not wish to discuss these questions here. Instead I should like to mention once again the second point raised in my note[1] and recently discussed by Needham[2]—namely, that work on organizers, particularly those concerned with regeneration, opens the way to an attack on the nature of the controlling forces from which malignant cells have escaped.—I am, etc.,

Strangeways Research Laboratory, Cambridge, Nov. 18th. C. H. WADDINGTON.

[1] Waddington, C. H.: *Nature*, 1935, cxxxv, 606.

[2] Needham, J.: *Proc. Roy. Soc. Med.* (Oliver-Sharpey Lectures), 1936, xxix.

Treatment of Carcinoma of the Cervix

SIR,—In criticizing the accuracy of a statement made by Mr. T. F. Todd has not Mr. Victor Bonney himself made two rather serious misstatements (*Journal*, November 14th, p. 1000)?

He twice asserts that involvement of the regional glands in cases of cancer of the uterine cervix is beyond the scope of radiological treatment. Surely the experience of those working in clinics where external irradiation is scientifically combined with local radium treatment is that glandular involvement does not place a malignant case outside the scope of radiology. Later in his letter Mr. Bonney states that, except for the surgeon's interest, there is no point in his ever seeing again a patient on whom Wertheim's hysterectomy has been performed. Mr. Bonney seems to overlook the interest of the patient. Wintz quotes 118 cases of recurrence after Wertheim's hysterectomy. Treated with *x* rays 17 per cent. were alive and at work after three to four years, 9.6 per cent. after 5 to 6 years, 6.7 per cent. after eight to nine years. Surely these patients gained some benefit from repeated examination. These figures would also suggest that Mr. Bonney is wrong when he states later that "cure or recurrence, there is nothing more to be done. . . ."

In conclusion I would quote Mr. Bonney's advice to Mr. Todd, with the substitution of the word "surgical" for "radiological." The making of such misleading statements by advocates of surgical treatment is a mistake: if made in good faith it displays an ignorance, or if with knowledge a certain unscrupulousness, which in either case does not advance the thesis. There are sufficient proved facts in favour of surgical treatment to warrant legitimate advocacy without this sort of stuff.—I am, etc.,

Dublin, Nov. 17th. OLIVER CHANCE.

SIR,—Mr. Victor Bonney's letter, in your issue of November 14th (p. 1000) under the above heading, criticizing certain statements in a report of a discussion on the subject published in your issue of November 7th (p. 937), prompts me to express my opinion on this matter.

Having had the privilege of working in the strongholds of both surgical and radiological technique—namely, the Chelsea Hospital for Women and the Radium Institute, Paris—I may perhaps be permitted to suggest that the following points are worthy of consideration. A comparatively small number of gynaecologists could aspire to the small operative death rate claimed by Mr. Bonney or to his high rate of cure; such results come from a lifetime of practice. Nevertheless it is essential that gynaecologists should continue to practise the Wertheim, even though they may not as a whole obtain such striking results as the elect: for this reason—that, however much radiology may encroach on surgical treatment of this site of cancer, there is at present no means whereby radiology can overcome the problem of adequate irradiation of certain cases. Some cases present a narrow vagina with a contracted vault, rendering proper distribution of adequate amounts of radium impossible. In other cases the cervical canal cannot be identified, or a large growth may render vaginal and uterine application impossible. Again, many radiologists do not believe that radium has an effect sufficiently certain on growths other than the squamous-celled carcinoma to justify their treatment by radium. Such cases as endocervical carcinoma and carcinoma spreading down from a primary carcinoma of the body should be treated by operation unless they are proved microscopically to be squamous-celled. Finally, there are those cases which have failed to react to radium, or have recurred after apparent cure, which should, if still operable, be operated on rather than receive further irradiation. Mr. Bonney would add a further class of those to whom the mention of radium suggests cancer. Here tact and the further enlightenment of the public that radium is of value in many cases of non-malignant disease is needed. I am sure patients subjected to radium to produce an artificial menopause do not imagine they have cancer if a proper explanation is given.

Having allotted certain cases to the surgeon, what cases can the radiologist claim? In the past only the inoperables and borderline cases were treated. As results seemed to justify it more and more operable cases were taken. Mr. Bonney would hold up the radiologist's advance by suggesting that the regional glands, which he has found in operable cases in 39.7 per cent., cannot be cured by irradiation. But all the evidence of such clinics as have practised deep *x*-ray therapy of high voltage to supplement the local radium application goes to show that the glands are affected by this combined treatment, and presumably the glandular field is involved in a comparable number of these cases. If one admits that the glands are carcinomatous in the same percentage of cases treated by irradiation as by operation, then the fact that radium therapy can claim such a high percentage of cures is surely proof of its efficacy. Moreover, the figures of the Radium Institute, Paris, showed a remarkable improvement following the adoption of the supplementary *x*-ray treatment.

In conclusion, it can only be justifiable to treat an operable case by irradiation if one is satisfied that the treatment will be given by an expert. Unfortunately there are many towns where a gynaecologist with proper training in radium work is unobtainable. Many hospitals and private radiologists have not yet installed modern high-voltage apparatus. When this is the case the patient should certainly be advised to undergo operation or seek radiological treatment elsewhere.—I am, etc.,

Bournemouth, Nov. 17th. J. W. NANKIVELL.

SIR,—With reference to his letter in the *Journal* of November 21st (p. 1054), it is a matter for regret that anyone who received his earlier gynaecological training at Guy's Hospital so recently as Mr. T. F. Todd should presume to criticize with grave discourtesy the moderately expressed opinion of Mr. Victor Bonney, whose genius, experience, and intellectual honesty are recognized by all responsible gynaecologists. I mention Guy's because we at that hospital are not usually given to the fanatical advocacy of one line of treatment to the exclusion of all others. In common with most propagandists, Mr. Todd adduces second-hand statistics. It may not have occurred to him that many of us, inasmuch as we do not profess to be pioneers, are more interested in obtaining clinical results than in publishing figures. For his information I am tempted to submit my own humble and therefore unpublished quota, in the hope that others will follow suit.

During the last thirteen years I have performed Wertheim's operation in *at least* seventy-five cases; and I have had *three* post-operative deaths, of which I am very fully conscious. One was due to pulmonary embolism. One patient died after the surgical treatment of a pyonephrosis six months after the original operation. The third patient developed infective thromboses, and died six weeks after the radical hysterectomy. For various reasons she was a "bad surgical risk," and I was only persuaded to operate by a general surgeon against my better judgement. Nowadays I should certainly apply radium and recommend deep *x*-ray therapy under similar circumstances.

Mr. Bonney has never overstated his case. If anything he has been too honest. His *apparently* high mortality has been due to the fact that he has courageously tackled very many "borderline" and hopeless cases in the past. On the other hand, his operation has been extremely thorough. I venture to believe that if he would or could have relied throughout his series upon deep *x*-ray therapy *as an adjunct*, his operation might have been less severe, and his mortality rate very considerably reduced on that account. End-results are another matter, however important. It is perhaps not irrelevant to state that my first Wertheim case is alive to-day, after thirteen years. The growth was fairly well advanced, and I now know the operation to have been rather a sketchy affair; *but* she was also treated by means of deep *x*-ray therapy. (Mr. Todd's obvious rejoinder leaves me unmoved!)

I think I can claim to have seen and to have played in all sides of the game. We have had deep *x*-ray therapy in operation at Guy's for thirteen years. I have had the privilege of working with Mr. Bonney and Mr. Rivett at the Chelsea Hospital for Women. And I have had ample experience of radium therapy before, during, and after the boom. As a result of uniform experience and, I trust, unbiased personal observation I have not the slightest hesitation in expressing the opinion that operable cases of carcinoma of the cervix are best treated by radical hysterectomy combined with deep *x*-ray therapy, and inoperable cases by radium combined with deep *x*-ray therapy.

One cannot escape the impression that many gynaecologists who laud radium to the entire detriment of surgery have been unfortunate in their surgical results or opportunities. And I would like to make one final claim—to understand the "critical northern women" quite as well as Mr. Todd, who is really a very charming and brilliant Hibernian. As a matter of fact, the public remained comparatively sane throughout the height of the radium boom. Their almost invariable comment was: "Are you quite sure it cannot be excised?"—I am, etc.,

London, W.1, Nov. 20th. FRANK COOK, F.R.C.S.

Conjoined Twins

SIR,—Dr. D. W. McLaren is to be congratulated on his successful separation of the conjoined twins reported in the *Journal* of November 14th (p. 971). For, although the attempt at separation is by no means unique, and many cases have been recorded in which one of the children has survived, the only case in which both children survived the operation was the one separated by Dr. Fatius of Basle in 1689! In 1861 Boehm separated his own conjoined babies (female xiphopagi like Dr. McLaren's case), but though one lived for five years the other died four days after operation.

It would be of very great scientific interest if Dr. McLaren could make some further investigations of the two children. Numerous observations have been reported from time to time regarding the anthropometric, physiological, and psychological characters of conjoined twins, but there are two matters which should, in my opinion, be investigated in every case—namely, the presence or absence of situs inversus in one of the children, and the identity or otherwise of their blood groups. As regards the former, several French observers from Dareste onwards have reported the presence of this condition in one of the children, but their evidence is not convincing. As to the blood groups of the two components, so far as I know there has been no observation recorded at all. These points are of considerable interest from the point of view of the embryogenesis of conjoined twins. If, for instance, it could be definitely established that situs inversus can exist in one only of the components such a finding would be some evidence against the uniovular origin of some of these twins, since we would on such a basis expect the situs inversus to be present in both or in neither—in view of the fact that situs inversus is, as I have shown (at the suggestion of Dr. Cockayne), a Mendelian recessive character. Similarly, if by any chance the conjoined twins were to be found to belong to different blood groups it would be quite impossible to reconcile such finding with the theory of their uniovular origin. It is clear, of course, that living conjoined twins in which there must be some circulatory interchange cannot have bloods of incompatible groups, but they may well belong to different compatible groups, provided they have not arisen from the same singly fertilized ovum.

There are three ways in which the origin of conjoined twins has been explained, but although the view that they arise from the incomplete separation of blastomeres of a singly fertilized ovum has a very great deal of evidence in its favour, it cannot be said that it fits in with all the facts. In the first instance, although it is true that human conjoined twins are invariably of the same sex (either both males or both females), authentic cases have been published of conjoined twins in other mammals in which the components belonged to the opposite sexes. Even in humans there is a two to three times preponderance of female conjoined twins, instead of the expected 1:1 ratio between male and female twins. Again, though common in certain domestic animals, so far as I know conjoined twins do not occur in the armadillo, which is known always to bear sets of uniovular quadruplets. Moreover, even their fingerprints show more marked differences than those shown by ordinary uniovular twins. It will therefore be realized how important from the academic point of view is such information as I am asking Dr. McLaren to supply.—I am, etc.,

W. M. FELDMAN, M.D., F.R.C.P.

London, W.1, Nov. 20th.

Occupational Deafness

SIR,—The annotation on occupational deafness (*Journal*, November 21st, p. 1036) must have aroused some interest among factory surgeons and otologists. My work on weaver's deafness, done on the suggestion of the late Sir Thomas Legge, showed that time appears to be the principal factor in determining the onset of the hearing defect. The position so far as compensation is concerned, however, is rendered rather difficult by the fact that not all weavers exposed to the noise and vibration for long periods become affected. The deafness is most marked in later life, when deafness is to some extent a physiological phenomenon. Moreover, the defect is often compensated for by the development of an ability to "lip-read." The work of Rodger on boiler-maker's deafness is well known here, and it is rather curious that this country is not one of the five in which these forms of deafness are listed as occupational diseases.—I am, etc.,

Manchester, Nov. 21st. W. BRYCE MCKELVIE.

Tuberculous Cervical Glands

SIR,—Having been for some years medical officer to a children's sanatorium dealing mainly with gland cases, I have read with interest the correspondence in your columns on this subject. I agree with Mr. Denis Browne that the cases seen fall into three main groups: (1) the obviously tuberculous with caseation, (2) the streptococcal group, and (3) a heterogeneous group comprising, amongst others, cases of mixed infection.

For the first group I believe the most satisfactory treatment on the whole to be incision of the softening gland with a tenotome as soon as the caseous pus approaches the surface, but—and most important—before any glazing of the skin has occurred. The cosmetic results following this method are generally excellent, certainly better than those obtained by allowing the glands to ulcerate through the skin, and the percentage of recurrences probably no higher than that following excision, as shown indeed by Dr. Thompson's figures, provided always that an adequate period of rest under open-air conditions be insisted on.

With regard to Groups 2 and 3, the serial Mantoux test has been found of great assistance at this sanatorium in picking out the non-tuberculous cases. Thus during the past three years the serial test in dilutions of 1 in 100,000, 1 in 1,000, and 1 in 100 has been carried out in eighty-one cases in which the diagnosis of tuberculous adenitis was doubtful; of these, forty-four, or 54 per cent., were negative in all three dilutions. The great majority of these non-tuberculous cases were undoubtedly streptococcal, secondary to tonsillar infection, but included also two or three cases of Hodgkin's disease. To me the most puzzling cases are those of persistent cervical enlargement without caseation or *x*-ray evidence of calcification, but giving a positive Mantoux reaction; the diagnosis in these must often remain in doubt, short of the examination of a piece of excised gland, a course which hardly seems justifiable in the majority of cases.—I am, etc.,

High Beech Sanatorium, Loughton, Nov. 11th. L. S. FRY.

SIR,—I hope you will permit me at this late date to comment on certain criticisms in your columns of my paper, "Cervical Gland Tuberculosis: The Case Against Surgery" (*Journal*, September 19th, p. 584). Many of your surgical correspondents claim better results than mine, though none goes so far as to produce actual figures, and it is a little disappointing that Messrs. Atkinson, Morrison, and Thomas each attributes this claim to his superior operative technique. I had hoped to forestall any such unprofitable discussion when pointing out at the start that the surgeons concerned in my statistics were all skilled beyond question in these fields of work. The "melancholy reading" of those statistics (the expression is Mr. Sutcliffe's) is not to be explained so easily, and I assure Mr. Morrison, despite his scepticism, that it does represent "quite a fair picture." A tuberculosis officer does not select his cases; where notification is efficiently carried out all forms of tuberculosis come automatically under his observation. If his experience is "unfortunate," as Mr. Bailey suggests mine to have been, it is at least comprehensive for the geographical area involved—much more so than the fortuitous clientele of a general hospital.

Cervical gland tuberculosis is relatively common in the county of Durham. In the first seven months of this year I saw 400 cases, almost all of which were of human-type infection. There is no reason to think that the disease runs a course either more or less favourable than that encountered in other parts of England. It is amenable to conservative methods of treatment, particularly by tuberculin, as Dr. Sutherland may be interested to learn, since he has apparently overlooked the relative paragraph in my original paper (see also Thompson, B. C.: *Tubercle*, October, 1936, p. 27). Of treatment with radium and *x* rays, my comparatively small experience has led me to subscribe to the view, widely held, that it tends to accelerate caseation once begun, and I have also seen in three cases disastrous remote effects in the form of telangiectases and massive local fibrosis. I have never been satisfied that ultra-violet light has any effect on uncomplicated tuberculous adenitis, though it is useful for sinuses and scrofulodermia. Dr. Jessel's figures seem to lack the support of an untreated control series, such as I obtained before evaluating tuberculin.

Your correspondence has revealed more divergence of opinion than this important question deserves. I look forward to a day of general agreement that surgical excision of tuberculous glands is a barbarous survival. I have learned more recently that in the United States it was generally abandoned some ten years ago.—I am, etc.,

BRIAN C. THOMPSON, M.A., M.D.Camb.

Baltimore, Maryland, Nov. 11th.

Sedimentometers

SIR,—I was much interested to read the letter of Drs. J. W. Shackle and C. L'Estrange Orme in your issue of November 14th (p. 1001), and look forward with keen anticipation to the publication of their article. From their letter one can fully appreciate that we have met with the same practical difficulties, and perhaps it may be of interest to relate how in the case of the sedimentometer these have been dealt with.

The sedimentometer described in my article (*Journal*, October 24th, p. 809) is intended for the consulting room, and for this purpose it has to be compact, readily portable, and economical in upkeep. It is true, however, that the manufacture of a multiple-tube instrument presents no great difficulties, and in point of fact I have one for experimental investigation which takes four tubes, recording the results simultaneously. Referring to the difficulty of heat affecting the results, I found in my early experiments that the value of the apparatus was nullified by the heat radiated from the source of light. But in the sedimentometer described the tube is enclosed in a small compartment in front of the lens, and it is shielded from heat and irregular lighting effects by a ground-glass window. When artificial light is used even the window is unaffected by heat, as the apparatus is then placed with its window about two feet from an ordinary electric lamp. For scientific accuracy a thermometer may be built in with the sedimentation tube and its reading recorded on the photograph, but this is hardly necessary for routine use.

There is no doubt that for the Westergren method readings beyond one hour should be taken, but in the case of the Cutler method it has been shown that no practical advantage is obtained in taking observations over a period greater than one hour. The Cutler technique has been adopted precisely because it is a graphic method, the value of which has been demonstrated by exhaustive investigations by Cutler and other workers; also because of the rapidity with which one can obtain a result, the essential readings being completed in one hour. Further, the sedimentometer, by a simple modification, can be used for any of the recognized methods, although with long tubes the apparatus tends to be cumbersome. I have had little experience of sedimentation phenomena in rheumatic cases, but I feel that a comparative study of the methods would be of value. In the meantime I hope that not only will Drs. Shackle and L'Estrange Orme publish the details of their interesting apparatus, but that they will also furnish us with a critical survey of the value of the sedimentation test in rheumatic conditions.—I am, etc.,

Preston Hall, Kent, Nov. 14th. TERENCE LEE.

Birth Control and Maternal Mortality

SIR,—About fifteen years ago I was stimulated to write a letter in support of birth control by the appearance of a letter in the *Journal* condemning the practice, in which the writer based his opposition on the fact that he and four fellow students had met after many years at an Annual Meeting of the B.M.A., and of the five none had propagated the species. That did not seem to me a valid reason why others with children should have unlimited families. The opinion I held then has not materially altered since, nor is it altered by the excellent and instructive figures presented by Sir Henry Brackenbury in his article of October 24th (p. 828).

My experience leads me to believe that among the married women in all the various classes there are very few who do not desire to have a reasonably sized family, but among the thoughtful and provident the fear of the disasters and drudgery resulting from unlimited families induces many to defer marriage or otherwise avoid child-bearing until they have settled into a groove which would be dislocated by the advent of a family, and this fear could be largely allayed by a proper knowledge of the uses and methods of birth control. I believe it is lack of the knowledge far more than fear of the risks of child-bearing that promotes the number of sterile marriages at present.

It is necessary to consider what is meant by birth control. Sir Henry appears to apply it to voluntary sterility, and that is very different from my interpretation, which implies the limitation of families to a size compatible with the means of the parents, the health and well-being of the mother, and the enjoyment of the amenities of civilization. Sir Henry points out that an average family of three per fertile marriage is necessary to maintain a stable population. I once made a computation which appeared to show that the ratio of child-bearing women to sterile women, including the unmarried, is about 70 to 30. With this ratio, if the child-bearing women each produced three children the population would show a slight increase and allow for a small wastage in maintaining stability. The failure of some to reach the standard of three would be balanced by the failure of others to terminate with three. The failure of the present average of three to maintain stability is due to the uneven distribution of children and the inevitable wastage of infants in the large families, which would be largely eliminated by smaller families. The greater individual care given to the children would be productive of a higher grade of child, both physically and mentally. The more even distribution in families and the elimination of large families incompatible with the powers of the parents to care for them would reduce the burden and tax on the more provident members of the community and would probably remove a deterrent to their having average-sized families of their own.

Sir Henry deprecates the publicity at present given to maternal mortality, but I doubt if it has much influence on the public. There are a few facts connected with mortality I wish to bring out. The present rate, in fact, is not so very bad, and with present conditions I do not think it is likely to be much reduced.

I have looked up the parity and age in 200 maternal deaths in maternity hospitals: 40 per cent. of the deaths were in first confinements, 14 per cent. in second, 7 per cent. in third, and 4 per cent. in fourth; the number then steadily rises with 6½ per cent. in fifth, 9½ per cent. in sixth, and 19 per cent. in subsequent pregnancies. Thus the first to fourth pregnancies produce 65 per cent. of the total, while the fifth and subsequent pregnancies account for 35 per cent. Unquestionably the first pregnancy entails the greatest risk, but the comparative risk is less than the percentage indicates, as the number of first pregnancies is greater than of any subsequent pregnancy. This applies to each lower group up to the fourth, but after that pregnancy the percentage of deaths for each rising number of the pregnancy entails a comparatively higher mortality for each group than the percentage figure implies. The total number of first to fourth pregnancies must enormously exceed the total of fifth and subsequent pregnancies. Since the "net reproduction rate" is only about 0.75 of unity the ratio of the first four pregnancies to fifth and subsequent pregnancies must be in the region of 4 to 1, which makes the relative mortality from pregnancies after the fourth more than double that of the earlier pregnancies. Taking the maternal mortality figure as 5, the 200 deaths would represent 40,000 confinements, and from the above computation 32,000 would be first to fourth pregnancies and 8,000 fifth or subsequent pregnancies. It is thus evident that by eliminating the pregnancies subsequent to the fourth, as might be effected by the adoption of birth control, the mortality would be reduced to 130 deaths in 32,000 pregnancies, giving a maternal mortality rate of 4.06 instead of 5, without any alteration in the present maternity service.

When the maternal deaths are considered in connexion with the age of the mothers, 30 years of age may be taken as the dividing line: it is found that eighty-one deaths were of women under 30 years of age, while 119 were women 30 years of age or over. Of the eighty-one under 30 years of age forty-nine were 1-para, seventeen 2-para, five 3-para, three 4-para—a total of seventy-four—as against only seven 5-para and over. Women 30 years of age and over supplied 119 of the deaths: thirty-one were 1-para, eleven 2-para, nine 3-para, five 4-para—a total of fifty-six—against sixty-three 5-para or over.

These figures definitely show that a first pregnancy when the woman is over the age of 30 years entails considerably greater risk than when she is under 30 years of age, for although the actual figures are respectively thirty-one to forty-nine the actual number of primiparae over 30 years of age is very much smaller than of those under 30 years of age. The same applies in the case of second, third, and fourth pregnancies. In the case of fifth and subsequent pregnancies, although the figures for over and under 30 years of age are respectively 63 to 7, a fair comparison cannot be drawn, as the number of women exceeding fifth or sixth pregnancies under the age of 30 years must be very small. The consideration of this age factor suggests the advisability of encouraging earlier motherhood, and this might be promoted by a knowledge that birth control could lessen the disadvantages of excessive families consequent on early marriage.

From the above analysis the following conclusions may be drawn:

1. A first pregnancy entails a greater risk than any subsequent one.
2. The risk rapidly and progressively decreases with each subsequent pregnancy until the fourth.
3. The risk in any of the first four pregnancies is increased when the woman is over 30 years of age.
4. The risk incurred by pregnancies in excess of four is at least twice as great as the risk incurred with the first four, and progressively increases as the number of the pregnancy increases.
5. The legitimate use of birth control is not to prevent or defer the age of motherhood, but rather to enable women to control the size of their families within dimensions compatible with their health and the comforts of civilization, so that they, in accordance with their social states, may rear children healthy in mind and body.
6. If birth control can be taught and adopted on these lines it would to a large extent eliminate wastage in infant life, improve the standard of children by supplying them with maternal care, and would reduce the greatest factor in slum production and solve the problem of the special areas far more effectively than any dietetic or sociological reforms, which only result in encouraging an irresponsible prolificacy among the thoughtless and ignorant at the expense of the rational.

—I am, etc.,

Dublin, Nov. 16th. GIBBON FITZGIBBON, M.D.

Voluntary Euthanasia

SIR,—Many in the audience at the Hunterian Society's debate on euthanasia (*Journal*, November 21st, p. 1047) must have been bewildered by the "platform" speakers on that occasion. Those who object to the Bill now before the House of Lords must have muttered to themselves "Save us from our friends" when they heard the opponents of the Bill, with apparent approval of the practice, urge that there was really no need for the Bill, as doctors could now, and did in fact, give a lethal dose when patient and doctor agreed that the suffering of the patient justified what the Bill proposes.

The most eloquent advocate of the Bill pleaded that as cremation and birth control were looked upon with horror when first proposed euthanasia (as defined in this Bill) is going through the same process. It may be true that hitherto generally accepted moral principles are being gradually undermined piecemeal. Cremation, of course, involves no essential ethical problem. It has long been only a matter of sentiment. But this line of argument, though it may be sound as a forecast of how easily moral and natural law foundations may be weakened by an offensive in detail, is it any argument at all on the merits of the question in debate? This speaker must have greatly disappointed many of his hearers when he concluded by saying that he was not eager to see this Bill now passed into law. The distinguished divine who spoke for "religion" pleaded that as the principle of taking life at its beginning—or, I suppose, before it began, to use an Irishism—was generally conceded we may now go a step further and terminate it on conditions. War and capital punishment were, of course, quoted. In both, is not the urge to abolish if possible, and as far as possible, this taking of life? The prerogative of God as the author of life and death was somewhat airily swept aside.

Whatever the audience thought of the courage (or audacity) of the speaker who boldly proclaimed that he freely practised what the Bill proposed I know not. It must have been a shock to many to hear that members of our profession constitute themselves judge, jury, and executioner in deliberately committing murder as the law at present stands. If the ancient pagan Hippocrates repudiated in set phrase the proposed practice, what are we to think of the proposal of the modern Christian doctor? Fortunately this is little, if at all, a medical problem, and it is unlikely that lawyers with a knowledge of all its implications and possibilities will allow the medical profession this tremendous power of life and death over its fellow citizens.—I am, etc.,

London, S.W.1, Nov. 23rd. REDMOND ROCHE.

A Bureau of Geographical Medicine

SIR,—I have been greatly interested in the recent correspondence in the *Journal* on the subject of geographical medicine, and agree with those who have written on the subject (October 24th, p. 840) that the establishment of a bureau to collect and collate medical information from all parts of the world would be a most useful piece of work. Such a bureau might not only deal with statistics concerning the incidence of disease in various countries, but would also serve a useful purpose in collecting normal physiological standards of different races.

In Manchuria, for instance, where I previously practised, several diseases which are common in Britain are relatively rare—for example, acute lobar pneumonia, acute articular rheumatism, cholecystitis, and biliary calculi, to name but a few. In connexion with rheumatism it is interesting to note that valvular disease of the heart, especially mitral stenosis, is quite commonly seen, and is probably due to manifestations of rheumatism other than the acute articular form. Malignant disease is common, but the sites which it attacks most often are not the same as in the West. Thus cancer of the oesophagus is exceedingly common, but cancer of the lip, tongue, and stomach is seldom seen. There are many such problems which seem to call for investigation. It may interest Dr. Kennedy to know that some very interesting research has been done recently by members of the staff of the Mukden Medical College on haematological standards in Manchuria. Important differences in Arneth count have been discovered as between Manchurians and Europeans, and it has also been found that Europeans who reside in the country for several years develop changes in their Arneth counts.

These are only suggestions to show that there is a very rich field for investigation in the realm of geographical medicine. There is a vast amount of valuable information lying unused throughout the world because of the lack of such a central bureau as has been suggested.—I am, etc.,

Edinburgh, Nov. 17th. DOUGLAS ROBERTSON, M.D.

Care of the Sea-sick

SIR,—The following experience may amuse if not instruct.

In December, 1911, I was in charge of H.M.S. *Cornwall*, cadet training ship, at Halifax, Nova Scotia. A German training ship for cadets and boys came into the port, and I went on board her to call on the medical officer. Just making conversation, I asked him if he had any cure for sea-sickness. To my surprise he said he had a certain cure. My German was *nil* and his English was rudimentary, but I at last grasped that the treatment consisted in applying a rubber bandage around the neck. Bier's congestion was then all the rage.

The *Cornwall* was then at the end of her commission and the cadets were all immune, so that I had no one to experiment upon. The Lord, however, delivered a civilian into my hands. The ship had been on the rocks, and a gentleman of the Royal Corps of Naval Constructors had been sent out from the Admiralty to superintend the repairs. Naval constructors do not, as a rule, have much deep-sea experience, their work being limited to "trials" in fairly sheltered waters. This officer had had a very bad passage out from Liverpool in a liner, and had been prostrated with sea-sickness. He was full of apprehension of the return crossing, which he was taking in H.M.S. *Cornwall*. When I proposed the treatment mentioned above he jumped at it.

We left early on a Sunday forenoon, and while still in calm water I went to his cabin, where he was in his bunk, and adjusted an elastic bandage fairly firmly round his neck, causing moderate pressure on the superficial veins. I left him with a sick-berth steward in charge. Unfortunately just then church was rigged on the half-deck outside his cabin. I did not like to interrupt the service, so that when I did return to him the bandage had been on for forty minutes instead of the twenty recommended by my German colleague. His face was considerably congested, and he complained that his eyes felt as if they were starting out of his head.

The sequel is interesting. The *Cornwall* had the worst passage I ever experienced; she had a gale on her starboard quarter and her rolling was terrific. It needed acrobatics to keep from falling out of one's bunk at night, and for three days the wardroom table could not be laid as everything jumped the fiddles. My friend the constructor never missed a meal, and was quite happy—far more so than many of the wardroom officers. He told me afterwards that he never felt a qualm during the whole passage.

I regret that I was unable to follow up this treatment. My next voyages were to the Cape and back in a Castle liner, and later, during the war, no one took much notice

of sea-sickness. Perhaps someone might care to give this treatment a more extended trial. As a very tentative explanation I suggest that in sea-sickness, the primary symptoms being mainly abdominal, the blood supply may be greatly increased in that region and correspondingly diminished elsewhere, thus causing anaemia of the brain—witness the facial pallor—and that the centres in the brain that would normally control and correct this abdominal syndrome are unable to do so. The elastic bandage round the neck prevents this anaemia.—I am, etc.,

A. W. B. LIVESAY,
Surgeon Captain R.N. (ret.)

Norwich, Nov. 12th.

SIR,—The correspondence relative to sea-sickness now appearing in the *Journal* is most interesting to an old sea-dog like myself, who has sailed the seven seas more than once, crossed the Atlantic eighty times, in both fair weather and foul, as well as sailed on the Caribbean Sea when a cyclonic storm was so terrific that the maelstrom caused the ship to dance like a cork in a whirlpool of seething waters and prevented us from giving succour to another vessel in a like predicament fifty miles away. Therefore, during my five years of sea life as a ship surgeon I need hardly say that I have seen many cases of *mal de mer* and tried the advertised nostrums, as well as drugs galore, by way of treatment, but have long ago come to the conclusion that they were all of little avail, at any rate if given by the mouth. What I did find most useful was to give a hypodermic injection of hydrobromide of hyoscine, dose from 1/200 to 1/150 of a grain at a time, and it usually acted like a charm. The patient slept soundly and awoke free from any nausea. The needle may be required next day, but never again on that voyage.

But when one is sure that sea-sickness is a pure neurosis is it any wonder that the *B.P.* cannot help us except by using its drugs as placebos only? I could give many examples of cure by suggestion. Here is one only:

The patient was so sick, and so fearful that the end was approaching, that the ship surgeon was sent for. He, of course, answered the summons promptly, and while on his way to the lady's cabin happened to pass her husband dancing on deck, and naturally wondered why he was not with his wife. She gave me a tale of woe and unhappiness, which, by the way, was the cause of the retching—past experience told me so. All I did say at the interview was that her husband did not seem to worry about things as she did, because at that moment he was dancing with a young American girl on the boat deck, and was apparently enjoying himself. She got out of bed at once and appeared on deck in her dressing gown. The shock cured the sickness; but some of your readers will say, "What a cruel doctor!"

—I am, etc.,

A. ROSE, M.B., C.M.

London, W.C.1, Nov. 21st.

Reduction of Sick Wastage after Athletic Injuries

SIR,—Mr. R. Salisbury Woods is apparently an ardent advocate of Böhler's methods, and has written an instructive article (November 21st, p. 1026) with which any surgeon treating injuries would agree. However, his treatment of a compound fracture is open to criticism, in that it may lead less experienced surgeons to follow a technique (too briefly described) with disastrous results. As a student of Böhler's and one experienced in compound fractures I should have preferred a more detailed description.

The first principle in the treatment of compound fractures is a thorough débridement of the wound and primary closure (if the time factor is favourable). Accurate reduction of the fractured bones, whilst the ideal, is of secondary importance. If after the primary manipulation the reduction is not accurate, there must be no undue hurry to correct the bony deformity by further forcible manipulations. At least three weeks should elapse between primary suture of a compound fracture and any forcible manipulation to correct remaining bony deformity.

I would not suggest that Mr. Salisbury Woods applied his forty-five-pounds traction on a Böhler's frame, let us say, ten days after his primary suture of the compound wound. But I would warn any surgeon who should be in a hurry to correct a deformity remaining after his primary "reduction" that early forcible manipulation is a dangerous procedure, as it almost invariably results in the breaking down of the wound that is not soundly healed.—I am, etc.,

WILLIAM GISSANE, Ch.M., F.R.C.S.

St. James Hospital, London, Nov. 22nd.

Shoulder Dislocation during Sleep

SIR,—Recently I was called to see a youth of 17 years who was said to have lost the use of his right arm. His story was that he went to bed about 11 p.m., and two hours later woke with pain in his right shoulder, which was severe enough for him to rouse his father to come to rub it for him. When I saw him he was sitting with his right wrist resting on his thigh; there was no pain, but he complained that he could not use the arm. I suspected a "Saturday night" paralysis, but his story of his doings the night before ruled this out.

On stripping him it was at once obvious, to my great surprise, that he had a complete subglenoid dislocation. This was reduced by the method of extension fairly easily (and painlessly) considering the size and strength of his musculature. There is no doubt that this dislocation occurred during sleep; I have made careful inquiries from his employer and his associates of the evening before which exclude any question of drunkenness, while his family are quite definite that his arm was normal when he went to bed. There is no history of any previous dislocation or other shoulder injury.—I am, etc.,

A. H. NEWTON, M.B., Ch.B.

Limerstone, I.W., Nov. 10th.

Treatment of Pink Disease

SIR,—I have read Dr. Vernon Braithwaite's remarks on the treatment of pink disease (*Journal*, August 22nd, p. 404, and *Archives of Disease in Childhood*, April, p. 49) with very great interest. I note he is getting good results by keeping patients cool by hydrotherapy, light clothing, and the use of electric fans, etc., and he ascribes Dr. Sweet's success not so much to the use of ultra-violet light as to the fact that he used tepid sponges in addition to ray therapy.

I had a case of pink disease referred to me recently and used only ultra-violet light. Symptoms improved almost immediately, sleep and appetite returning. After each treatment the child was less fretful for a short time. Very soon she began to run about more, and at the end of two months was well enough to leave off treatment. An uneventful recovery followed.

I know that one should not perhaps lay too much stress on one case, but I write this merely to record results, not to dogmatize as to the best form of treatment.—I am, etc.,

W. GORDON RICH.

Christchurch, New Zealand, Oct. 14th.

Obituary

SIR WALTER OGILVIE, K.B.E.

Major-General I.M.S. (ret.)

Major-General Sir Walter Holland Ogilvie, K.B.E., C.B., C.M.G., died in Edinburgh on November 20th, aged 67. He was born on September 2nd, 1869, the third son of Dr. John Forbes Ogilvie-Bey of Alexandria. He came of a well-known old Scottish family. One of his forebears was out in the 'Forty-five with Prince Charles Edward. His son, who had settled in Carolina, remained loyal to England in the American rebellion, and lost his estates thereby. An older kinsman was hanged at Glasgow, early in the seventeenth century, for religious reasons, and was beatified as a martyr by the Pope in 1929.

Ogilvie was educated at Bedford Grammar School and at Edinburgh University, where he graduated M.B., C.M. in 1891, subsequently taking the B.Sc. in 1893 and the D.Sc. in 1898. He entered the Bengal Medical Service as surgeon lieutenant on January 30th, 1893, became lieutenant-colonel after twenty years' service, got a brevet colonelcy on June 3rd, 1919, became colonel on May 20th, 1920, and major-general on June 24th, 1923. On January 3rd, 1927, he was appointed Director of Medical Services in India, the highest military medical appointment open to the I.M.S., and retired on September 2nd, 1929. Most of his service in India was spent in military employ; he never applied for civil employ, though he was twice deputed to civil work for public service reasons. For many years he was medical officer of the 40th Pathans, known familiarly as "The Forty Thieves," now the 5th Battalion of the 14th Punjab Regiment. He served in the Sudan campaign of 1896, in the Dongola expedition, receiving the medal and the Khedive's medal. In 1897 he was deputed on famine work in the Central Provinces, an arduous and unpleasant piece of work. He served in the China War of 1900, taking part in the relief of Peking, receiving the medal and clasp; and in the Tibet War of 1903–4, doing the march to Lhasa and getting the medal. In June, 1912, he was appointed health officer of the new capital, and remained at Delhi for four years in various capacities. In 1916 he was released for military duty, and, joining the 7th Indian Division before Kut, took part in the occupation of Baghdad and in the defeat of the Turks at Tepit; he then served in Palestine, taking part in Allenby's campaign against the Turks. He was mentioned in dispatches in the *London Gazette* of August 15th, 1917, January 21st, 1919, and June 3rd, 1919, and received the Order of the Nile, a brevet as colonel, and the C.M.G.. It used to be said that Ogilvie, as a member of a victorious force, had marched into three capitals, Peking, Lhasa, and Baghdad.

After his return to India he served successively as A.D.M.S. of the Presidency Division, D.D.M.S. of the Northern Command, and Director of Medical Services in India. His work did not go unrewarded. He received the C.M.G. on August 29th, 1917, the Order of the Nile, third class, on November 26th, 1919, the C.B. on June 2nd, 1923, was appointed Honorary Physician to the King on June 12th, 1923, and made K.B.E. on June 4th, 1928. In 1899 he married Robina, daughter of Surgeon Major R. W. Cunningham, I.M.S., and had two daughters. He had been a member of the British Medical Association for nearly forty years.

The passing of ARTHUR HAMILTON STEWART ROBERTS, B.A., M.D., on October 28th, at Portsmouth, from acute pneumonia, at the age of 65, has caused much sorrow to his patients and friends. He had been in failing health for some time, but it was characteristic of his thoroughness that he attended his clinic of the Royal Portsmouth Hospital a few days before he was stricken down, and he even saw some patients during the forenoon of the day when he was compelled to go to bed. His career was a varied one—as a ship surgeon, and as a civil surgeon in the South African Field Force. Eventually he settled in Portsmouth, where he occupied the same house for over thirty years. He held many appointments at the hospital, going from anaesthetist to director of the radium department, and he became assistant physician and dermatologist. His practice, never large, was unique, and, built up by charm of manner and an instinctive power of diagnosis and downright ability in treatment almost amounting to genius. His patients were all his friends, and they had implicit trust in him. He attracted to him a large number of poor people, and his delight was to serve them. The power for good and the influence he wielded was revealed by an incident: when seriously ill, and unknown to him, prayers were offered up by the Salvation Army for his recovery. On being told it at a later date it brought a keen emotion to his soul. During the great war—from 1914 to 1919—he was M.O. in charge of troops at Horsesand Fort, Spithead, being unfit for service over-seas. He acted as secretary of the Section of Medical Sociology when the British Medical Association held its Annual Meeting at Portsmouth in 1923.

R. J. McKEOWN.

The sudden death of GORDON GREAVES, who was killed in a street accident on the evening of November 18th, was a great shock to his friends and colleagues. He had recently returned to Cardiff after convalescing from a long illness and was about to take up again the threads of his normal activities. Henry Gordon Greaves was educated at Cambridge and St. Bartholomew's, graduated M.B., B.Ch. in 1911, served in the great war and in the service of the P. & O. Steam Navigation Company as a surgeon, and had been for some time in general practice when, on the advice of his old chief Sir Holburt Waring, he came to Cardiff in 1923 and set up in practice as an anaesthetist. He was lecturer in anaesthetics in the medical school and anaesthetist to the Cardiff Royal Infirmary and to the municipal and orthopaedic hospitals. Quite recently he had devised an ingenious anaesthetic wagon with which were incorporated supplies of anaesthetic gases, and which is in use in the Surgical Unit at the Cardiff Royal Infirmary. He was a pioneer in that he was the only member of the profession in Cardiff engaged exclusively in anaesthetic practice. He was popular with all those who knew him, as it was soon realized that while he had a powerful personality and was inclined to state his opinion forcibly, he was invariably cheerful and kind, and as straight as a gun barrel. Greaves was one who suffered hardships with cheerfulness and equanimity, and we cannot better think of him than as one who believed and practised what Osler wrote long ago, that "courage and cheerfulness will not only carry you over the rough places of life, but will enable you to bring comfort and help to the weak-hearted and will console you in the sad hours when, like Uncle Toby, you have to whistle that you may not weep." Although he had many and heavy troubles, no one ever saw him gloomy, depressed, or concerned about himself. His was a great spirit. His vivid personality in the operating theatres of Cardiff will long be remembered, and their precincts will be the sadder for his loss.

L. R.

Dr. JAMES WILLIAM GRANGE of Kersal died suddenly on November 21st. He took the M.B., C.M. at Glasgow University in 1881, proceeding M.D. in 1888. After a period as house-surgeon at the Glasgow Western Infirmary he settled in Kersal, Manchester, and built up a large practice. Dr. Grange, who was 77 years of age, had not been in good health for the past twelve months, and retired from active practice only three weeks before his death. He had been a member of the British Medical Association for thirty-four years, and was president of the Manchester Clinical Society in 1912–13.

The following well-known foreign medical men have recently died: Dr. THOMAS BEAVER HOLLOWAY, professor of ophthalmology at the University of Pennsylvania School of Medicine, Philadelphia, aged 64; Dr. CHARLES GILBERT CHADDOCK, emeritus professor of neurology and psychiatry, St. Louis University School of Medicine, aged 74; Dr. FERNANDO CASTELO, president of honour of the Spanish Academy of Dermatology and Syphiligraphy and senior physician to the venereological department of the San Juan de Dios Hospital, Madrid; Dr. F. BORDAS, Commander of the Legion of Honour, member of the Superior Council of Hygiene, editor of the *Annales d'Hygiène Publique*, and founder of the Société d'Hygiène Publique, aged 76; Major-General LUIGI RUGANI, professor of oto-rhino-laryngology at Sienna, aged 68; and Dr. EMILIO JIMENO, president of the Spanish Academy of Medicine.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The annual meeting of Fellows and Members of the Royal College of Surgeons of England was held on November 19th, with Sir CUTHBERT WALLACE, the President, in the chair.

The President, in presenting the report of the Council, drew attention to the increasing popularity of the Fellowship, and to the fact that the Council had arranged for Primary Fellowship examinations to take place in Melbourne, Sydney, Dunedin, Bombay, and Cairo in 1937. The museum was increasingly used, over 10,000 people having visited it during the year. Much good research work has been done at the College during the year. The Bernhard Baron Trustees had given £25,000 for the erection and equipment of new laboratories, and when that work was completed in a year or eighteen months, the research work of the College would be increased.

Dr. REDMOND ROCHE, referring to a statement in the report that no further action had been taken regarding the suggestion that the Royal Colleges should take part in the award of a diploma of dietetics, said that the question of granting such a diploma to lay people had arisen from a knowledge on the part of the public that there was a weakness in the equipment of the general practitioner which prevented him from doing a great deal of good work that he might otherwise do. It might be an advantage if the body consisting of representatives of all the examining and licensing authorities which had been called together two years ago was still in existence; a standing committee of that body should be appointed to consider problems arising from time to time with regard to the instruction of medical students, so that they might be helped to acquire knowledge which would be useful to them. Such a committee might issue instructions to the various medical schools to the effect that teaching on dietetics should be systematically given during the clinical course.

The PRESIDENT, in reply, said that the Curriculum Conference had issued its report and was no longer in being. With regard to the suggestion that a question on dietetics should occasionally be set in examination papers, those who set the papers bore that in mind, and special questions were asked from time to time in order to keep alive the interest of students in the subject.

Representation of Members

Dr. GILBERT ORME moved:

> That this forty-sixth annual meeting of Fellows and Members of the Royal College of Surgeons of England again affirms that the Members, who constitute 90 per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-five times and never once lost.

He said that it seemed regrettable that Members should have knocked for so many years at the door of their own council chamber without gaining admission. The occupants of that chamber were impervious to argument, for so convincing had been the arguments that never once had the resolution been lost. He had been able to discover only one answer given by them—namely, that the Council had no evidence of any widespread desire upon the part of Members for representation upon their board of control. In 1930, however, a postal vote had been taken and very good evidence had been furnished, for out of a total of 12,542 possible votes no fewer than 6,936 had been cast in favour of representation on the Council, while only 156 had been cast against it. The administrative work of the Council was largely academic, in that it chiefly concerned itself with the standard and control of examinations in surgery, the supervision of scholarships and prizes, research work, and the creation of new prizes and scholarships when considered desirable. Even for that part of the work there were among the members of the College general practitioners who could give some real help to a body of individuals consisting almost exclusively of surgical specialists, who knew comparatively little of the problems of general practice and its educational needs. Such general practitioners would be better qualified to set a searching question upon a surgical condition more particularly met with in industrial practice, such as strained back, and to correct the answers to it. Surely, too, any body which was in charge of the surgery of the country should lead an investigation into wider fields than the purely scientific. Could not the College take a greater lead in educating the public in matters which even now were dominated by superstition, such as bone-setting, osteopathy, and chiropractic? And who would be better qualified to help in advising upon such matters than the general practitioner, who was infinitely more likely to come into contact with superstitions of that nature? Perhaps representatives of the Council and of the Society of Members could meet in a friendly way and endeavour to evolve the best means of giving the Members some small representation upon the governing body of the organization which they so largely maintained.

Dr. PERCY B. SPURGIN, in seconding the motion, said that the Members of the College knew that a large proportion of the Council felt that there should be some means whereby the particular interests of the Members could be represented upon the Council. Other bodies had long since come to that conclusion. For instance, the General Medical Council had decided some years ago to have direct representation of the profession upon it, with the result that the value of the Council had been greatly enhanced from the point of view of the interest of the public as well as the interest of the profession. Again, in the British Medical Association every member, whatever his position in actual practice might be, had an opportunity of rising to the highest position. The deliberations of the Council of the College would be benefited by having Members of the College amongst its number. He understood that the alteration of the Charter that would be entailed would require an amending Act, but that would be a very short Act, and the Society of Members would be pleased to contribute towards the expense.

Dr. HOWARD STRATFORD said that the supporters of the resolution felt that it was in the public interest that the Members of the College should have some representation on the Council, and if it was in the public interest it was also in the interests of the general practitioners. Surgery to-day was so complicated that it was very difficult for those who practised it exclusively to understand and keep in touch with other matters. For instance, the public was much alarmed at the prospect of a gas attack over England, especially over London, and he believed that the British Medical Association, in conjunction with the Government, had instituted anti-gas lectures to medical men, which were being given all round London. Those lectures were very important, but he did not suppose that the Council knew anything about them; it was the Members of the College who knew about them, and if they were represented on the Council they could keep the Council informed on such matters.

Dr. BLACKBURN opposed the motion because he did not believe in democracy. If the examination papers of the College were compared with those of other examining bodies he thought they would be found to be more practical and sensible. In his opinion there would be no harm done if the Council occasionally co-opted a general practitioner upon one of its committees, such as a committee dealing with bone-setting or euthanasia, but he hoped that the present method of constituting the Council would never be changed. Dr. R. GILLBARD, in supporting the motion, pointed out that under the present system 2,300 Fellows of the College

governed 20,000 Members. Dr. GRAYDON HUME also spoke in favour of the Members having some representation on the Council. Dr. HAROLD SANGUINETTI said that the Council was elected from a body of men whose sole qualification was that they had passed a certain examination in surgery. The College had to deal with matters quite outside the operating theatre or the ward, and there was nothing to show that those who had passed their Fellowship examinations were more suited, through their representatives, to arrange the affairs of the profession than were the Members.

On the motion being put to the meeting it was carried, 28 voting for and 6 against.

The PRESIDENT said that the Council had given serious consideration to the subject of the resolution, but up to the present had not been convinced that it was desirable that Members of the College should be represented on the Council. The subject of osteopathy had been referred to, and he would point out in this connexion that the College had joined in opposing the Osteopaths Bill in the House of Lords, and the opposition had cost the College £920, but it had been successful.

Primary Fellowship Examination

The following have been successful at the First Professional Examination for the Diploma of Fellow:

J. R. Armstrong, M.B., B.Ch., B. Bandyopadhyaya, M.B., J. R. Belcher, A. D. Bell, A. J. S. Bell Tawse, R. Bewick, M.B., Ch.B.Glas., F.R.C.S.Ed., H. E. Blake, B.Ch., M.R.C.S., H. A. C. Chalmers, J. L. Collis, M.B., Ch.B., M.R.C.S., D. M. Cooper, M.B., B.S., M.R.C.S., J. O. Corbin, M.B., B.S., J. V. Crawford, J. K. Cunninghame, M.B., Ch.B., A. W. Douglas, M.B., Ch.B., F. L. Dyson, A. B. Evans, M.R.C.S., H. Freeman, M.R.C.S., F. N. Glover, J. A. S. Green, A. D. M. Greenfield, D. W. Guthrie, M.B., Ch.B., H. Haggag, M.D., H. G. Hanley, M.R.C.S., B. J. Harries, P. F. J. Hickinbotham, J. H. Hicks, F. D. Hindmarsh, J. W. Horsley, M.B., Ch.B., A. Innes, B.Ch., M.R.C.S., I. M. Jackson, J. A. R. Johnson, M.B., Ch.B., M.R.C.S., A. R. K. Kelly, M.B., B.S., J. Lannon, M.B., Ch.B., J. K. McCollum, M.B., B.Ch., J. MacHale, E. W. McMechan, M.B., Ch.B., J. W. Magladery, M.D., M. Makeen, M.B., Ch.B., B. T. H. Marteinsson, M.D., G. A. Matthews, G. M. Mes, N. A. Neville, E. D. E. E. O'Brien, M.B., B.S., R. Orgias, M.B., Ch.B., L. I. Parton, M.B., Ch.B., R. M. Paton, M.B., B.S., M.R.C.S., E. L. Patterson, M.B., Ch.B., F. R. Philps, T. G. Pritchard, W. L. L. Rees, J. E. Richardson, P. Smith, C. F. V. Smout, M.B., Ch.B., M.R.C.S., M. Sofer-Schreiber, M.B., B.S., I. Spiro, M.R.C.S., B. E. C Stanley, M G. Talwalkar, M.B., B.S., L. J. Temple, R. G. Thomas, R. N. Traquair, M.B., Ch.B., N. M. Vora, M.B., B.S., J. S. H. Wade, C. F. H. Wiessner, A. F. Williams, A. E. Williams, M.B., B.Ch., R. E. O. Williams, S. C. Williams, M.B., B.S.

UNIVERSITY OF OXFORD

In Congregation on November 17th the retiring age limit for Sir Farquhar Buzzard, the Regius Professor of Medicine, was specially raised from 65 to 70. The Senior Proctor, in bringing forward the motion, referred to Sir Farquhar's intimate concern with the working out of the detail of Lord Nuffield's great benefaction for medical research at Oxford, and said it was clearly desirable that he should be associated with the scheme after it had been put into operation.

A Statute establishing a separate readership in bacteriology was promulgated on the motion of Mr. C. G. T. Morrison, who pointed out that the work done in pathology and bacteriology in recent years had grown so much that it could not be adequately covered by one man.

At a Congregation held on November 21st the following medical degrees were conferred:

D.M.—D. W. Geidt.
M.Ch.—H. J. B. Atkins.

UNIVERSITY OF LONDON

At a meeting of the Senate held on November 18th, with the Vice-Chancellor, Mr. H. L. Eason, in the chair, the title of Professor of Pathology of Mental Disease in the University was conferred on Dr. F. L. Golla, F.R.C.P., and that of Professor of Psychiatry in the University on Dr. Edward Mapother, F.R.C.P., F.R.C.S., in respect of the posts held by them at the Maudsley Hospital.

Sir Ernest Graham-Little, M.P., has for the fifteenth consecutive time been re-elected Chairman of the Council for External Students of London University.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE

The annual Court of Governors was held on November 18th, with Sir Ralph Mortimer in the chair, when Sir Robert Bolam, President of the Council of the University of Durham College of Medicine, Newcastle, announced that with the co-operation of the Armstrong College authorities clearance of the site for the new medical school in Queen Victoria Road would soon begin, and thereafter erection of the buildings would proceed as expeditiously as possible. The annual report of the Council acknowledged the offer of £100,000 from Sir Arthur Sutherland "so that if the new constitution now being framed is generally acceptable my gift will be available for the building and equipment of a new and up-to-date school of medicine worthy of this county and the Northern Counties which it will serve." The report expressed the hope that circumstances would soon permit the College to utilize this, the most memorable benefaction in the history of the Medical School. It was also announced at the meeting that the final draft of the statutes under the University of Durham Act is expected towards the end of November.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

In the House of Lords on November 24th the Earl of Feversham moved the second reading of the Diseases of Fish Bill, the main object of which is to combat the disease of furunculosis, which particularly affects salmon and trout. The Bill imposes restrictions on the importation of live fish and eggs of fish. The Bill was read a second time.

On November 24th the Judiciary Safeguarding Bill was read a second time in the House of Lords, as was also the Railway Freight Rebate Bill. On the same date the Marquess of Dufferin and Ava introduced the Firearms Bill.

The House of Commons this week approved the new Treaty with Egypt and examined the Public Order Bill in committee. Draft Orders on the future Government of India and Burma came before both Houses.

The Coal Mines (Employment of Boys) Bill was read a second time by the House of Commons on November 20th without a division and was sent to a Standing Committee. The Bill prohibits employment of boys below ground between 10 p.m. and 5 a.m.

The House of Commons resolved, on November 18th, that steps should at once be taken to prevent further industrial concentration around London and in the South by diverting new undertakings to those areas where unemployment and under-employment have for long caused hardship and distress among industrial populations.

The Parliamentary Medical Committee entertained Viscount Dawson to dinner on November 24th to mark his elevation to a viscountcy, he being the first practising medical man to attain that rank and the only medical viscount save the late Lord Finlay. Sir Francis Fremantle was in the chair, and the party, which numbered twenty, included all past medical M.P.s still alive except Dr. Christopher Addison, Dr. Drummond Shiels, Dr. Vernon Davies, Sir George Berry, Mr. Somerville Hastings, and Sir J. V. Worthington. Medical men sitting in the present Parliament who were unavoidably prevented from attending were: Lord Horder, Mr. Elliot, Dr. Salter, and Dr. Leech. Sir William Collins was the senior ex-parliamentarian present. Sir Francis Fremantle proposed Lord Dawson's health. Lord Dawson, in reply, surveyed the main politico-medical problems of the moment, especially those of physical fitness and nutrition, with the wider question of assisting the advance of the fit to correct the consequences of saving the unfit. He also referred to euthanasia and to birth control. Past medical M.P.s who spoke were Sir William Collins, Sir Richard Luce, Sir Auckland Geddes, Dr. Forgan, Dr. L. Molloy, Dr. O'Donovan, and Dr. Nathan Raw. Others present included Captain Elliston, Major Neven Spence, Mr. J. Douglas Cooke, Colonel Sinclair, Dr. Howitt, Dr. Haden Guest, Dr. Graham Kerr, Sir Henry Jackson, Dr.

Morris-Jones, Mr. H. C. Haslam, and Sir Ernest Graham-Little.

The Conservative Party Committee on Nutrition met at the House of Commons on November 24th and was addressed by Sir Kingsley Wood. A discussion followed.

Extension of Medical Benefit

Sir KINGSLEY WOOD told Mr. Rostron Duckworth on November 9th that the cost of providing all insured persons with pathological diagnosis, operations, and electrical, ophthalmic, hydropathic, radiant heat, massage, and convalescent hospital treatment as part of medical benefit under the National Health Insurance Acts would depend on the scope and conditions of the services. He was unable to give any estimate. Some of these services were included within the scope of the additional benefits which approved societies having a disposable surplus might provide for their members, and societies devoted large sums annually towards the cost of such services.

Silicosis Compensation

Mr. GEOFFREY LLOYD, in an answer to Mr. Ellis Smith on November 16th, said it was not proposed to take steps to include silicosis and asbestosis in the industrial disease provisions of the Workmen's Compensation Acts. Special provisions had been enacted by Parliament to enable compensation to be given for these diseases because the ordinary industrial disease provisions were not considered appropriate; and the Home Secretary knew of no reason for departing from the present arrangements.

Mr. TOM WILLIAMS asked, on November 16th, who was responsible for appointing members of the area medical boards to deal with silicosis cases; what special qualifications they possessed; the terms of their appointment; and whether any member of these medical boards could act for employers in other compensation cases. Mr. GEOFFREY LLOYD replied that the area panels of the medical board were appointed by the Secretary of State. They were whole-time salaried officers and were not free to act for employers or workmen. In a few districts in which cases occasionally arose and were not conveniently served by the panels, special doctors were appointed to act in conjunction with a whole-time member when necessary. The terms of appointment of these doctors would not preclude their acting for an employer or workman in some compensation cases, but a report or certificate under the scheme could not be issued except with the authority of at least two members of the board. The special qualifications of the members consisted partly of their previous experience of respiratory disease, in the light of which they were appointed, and partly of the knowledge and experience gained by constant examinations under the schemes in consultation with their colleagues.

Pasteurized Milk Below Standard

Mr. ROBERT HUDSON told Sir Arnold Wilson on November 19th that Sir Kingsley Wood knew of a statement in the annual report of the medical officer of health for Bootle that of thirteen samples of pasteurized milk taken from two licensed plants of modern design erected in the previous year, only eight conformed to official standards, and of twenty-one samples of school milk only fifteen came up to standard. In May, 1935, the Ministry of Health had circulated to local authorities a detailed memorandum on the requirements for ensuring the efficient working of pasteurization plants. On April 24th, 1936, in a circular letter, Sir Kingsley Wood again drew attention to the matter. He then suggested that local authorities should survey all licensed plants in their areas and cause frequent inspections to be adopted in future. Mr. Hudson added that Sir Kingsley did not consider any fresh scientific inquiry was at present required on this subject, but rather continuous activity on the part of the licensing authorities in supervising operation of pasteurization plants. Mr. A. V. ALEXANDER asked whether owing to the use of unpasteurized milk at Bournemouth there had been 500 cases of typhoid and forty deaths. No answer was returned.

Committee on Scottish Administration

Mr. ELLIOT, desiring that a review of the present Scottish administrative arrangements should be undertaken, has appointed a committee with the following terms of reference:

"To inquire into and report upon the duties of the Scottish Office, Scottish Education Department, Departments of Health and Agriculture for Scotland, and other Scottish administrative departments under the control of the Secretary of State for Scotland, the distribution of those duties between departments, the position of the departments in relation to each other and to the Secretary of State, and the arrangements under which liaison is maintained between Edinburgh and London, in the conduct of public business; and to recommend what changes, if any (whether legislative or otherwise) should be made, keeping in view the prospective concentration of departments in one building in Edinburgh."

Divorce on Grounds of Incurable Insanity

On November 20th Mr. DE LA BÈRE moved the second reading of the Marriage Bill, which proposed amendments to the law of divorce in England and Wales. Mr. A. P. HERBERT, in seconding the Bill, explained that Clause 2 dealt with the grounds on which divorce should be granted. In Section (*d*) of Clause 2 the ground was incurable insanity. This was taken from an old Bill, and the word "certified" in it was out of date. The intention was that where a person became incurably insane and had been continuously insane for five years, the spouse of that person could sue for divorce. In 1930 there were 40,000 married lunatics in the country, and 20,000 of these had been certified for more than five years. Evidence given to the Royal Commission on Divorce had shown that of lunatics who recovered, 88 per cent. recovered in two years, 9 per cent. in three to five years, 1.6 per cent. between five and ten years, and 0.5 per cent. between eleven and twenty years. Clause 5, dealing with new grounds of nullity, followed the recommendations of the Royal Commission. Clauses 9 and 10 proposed to give the first hearing of divorce petitions to magistrates selected by the Lord Chancellor—in most cases a stipendiary, another magistrate, and a woman magistrate. Many police courts were now equipped for social services and had medical advisers. When a wife went to the police courts and some question arose which could be dealt with by medical advice, the services of a doctor were called in. Why tolerate a system which so dealt with applications for separation or maintenance but left applicants for divorce with only legal assistance?

Commander AGNEW said that insertion of insanity as a ground for divorce would produce difficulties and confusion. Habitual drunkenness was also mentioned in the Bill, but medical men assured him that this could be cured. Mr. R. H. MORGAN read a letter from a woman married to a man who had been detained in a mental hospital since 1905. Sir DONALD SOMERVILLE said the debate showed that the House wished the Bill to have a second reading. If this were conceded the Bill would go to a Standing Committee which would be attended by himself as Attorney-General or by the Solicitor-General. Many proposals in the Bill required careful examination, but Clause 2 was substantially the recommendation of the Royal Commission on Divorce.

The Bill was read a second time by 78 to 12 and was sent to a Standing Committee.

The Bill has been referred to Standing Committee A.

Infanticide Bill

In the House of Commons on November 24th Mr. JAGGER asked leave to bring in the Infanticide Bill, to provide that a woman who wilfully caused the death of her child, being under the age of 8 years, may, in certain conditions, be convicted of infanticide. He said that the Bill consisted of one clause. It merely sought to legalize what had been the consistent practice for nearly ninety years, and to remove the legal anomaly and futile cruelty involved in sentencing women to death when it was perfectly well known to everybody except the unfortunate prisoner that there was no intention of the sentence being carried out. There had been six cases of that character in the last twelve months, and one

judge had told a prisoner that she need take no notice of the dread sentence he was about to pass upon her. In this class of case, Mr. Jagger contended, there was a very real need of doing something more than was done by the Infanticide Act of 1922. Of the eleven cases which had occurred in recent years he instanced two. One was that of a girl of 18, who drowned her illegitimate child of 18 months. The child's father, a military man, failed to pay alimony as ordered by the court. Eventually the girl was driven to desperation. According to the medical evidence the girl had only the mentality of a child of 11. After being sentenced she was in the condemned cell for thirteen days and was then reprieved. Another and more recent case was that of a domestic servant of 26, who had an illegitimate child. The father failed to pay alimony, and the girl tried to earn money to pay the foster parents. She got behind with payments, and the foster parents ordered her to remove the child. The woman jumped into a river with the child in her arms. The child was drowned, but the mother was saved, and there followed what was almost the farce of a judicial trial for murder. A verdict of "Guilty" was brought in; she was sentenced to death; and reprieved within twenty-four hours. The promoters of the Bill desired that the Infanticide Act of 1922 should be repealed and should be replaced by the Bill which would so amend the original Act as to make it possible for juries, in situations of the kind he had mentioned, even though the period exceeded the present limit, which in practice had been interpreted by the judges as being about twenty-one days, to extend it so as to cover mothers who committed these acts under extreme stress arising from other causes than the immediate effect of childbirth.

Leave was given and the Bill was brought in.

Abortion and Maternal Mortality

On November 24th Sir KINGSLEY WOOD, replying to Mr. Boothby, said that no statistics existed to show whether the prevalence in this country of illegal operations for abortion by unqualified persons was a contributive factor to the high rate of maternal mortality. A suggestion by Mr. Boothby that, in view of the recommendations of the British Medical Association, following the report of its special Committee, the Government should consider setting up a Royal Commission to inquire into the operation and results of the present law relating to abortion, with a view to its reform, would receive his careful consideration when he had before him the report, now in preparation, of the special investigations recently made by officers of his Department into maternal mortality in various parts of the country.

No Compulsory Pasteurization.—Sir KINGSLEY WOOD told Mr. Robert Morrison on November 12th that he knew the facts of the recent epidemic in Bournemouth which involved 500 cases of infection and forty deaths, but he could not undertake to introduce legislation at the present time to make the pasteurization of milk compulsory.

Local Government Officers' Superannuation.—Mr. HUDSON told Sir Henry Jackson on November 16th that the proposed Bill to deal with the superannuation of local government officers would be based generally on the recommendations of the Departmental Committee of 1927. Its main object would be to secure provision by all local authorities for superannuation of their administrative, professional, and clerical staff, to remove the bar to mobility to which the absence of a uniform superannuation system gave rise and which the Committee unanimously regarded as unfavourable to the efficiency of local government service. These considerations did not apply with the same force to other members of the staffs of local authorities, so the Government proposed that the superannuation of these employees should remain a matter for the discretion of each local authority.

Treatment Costs Recovered in Isolation Hospitals.—Replying, on November 16th, to Mr. Tom Williams, Mr. ROBERT HUDSON said some local authorities attempted to recover from patients the cost of their treatment in isolation hospitals for infectious diseases. The authority under which these costs were recovered was Section 132 of the Public Health Act, 1875. No general pronouncement had been made by Sir Kingsley Wood or by his predecessors regarding the desirability or undesirability of recovering such costs, but Sir Kingsley had suggested that discretion should be exercised because undue insistence might tend to defeat the objects for which isolation hospitals were provided. Sir Kingsley thought he would not be justified in making a general pronouncement that to recover these costs was undesirable.

Physical Fitness in Scotland.—Mr. WEDDERBURN told Sir Samuel Chapman, on November 17th, that Mr. Elliot proposed to consult instructed opinion in Scotland before deciding on the details of the plans for the promotion of physical fitness.

Respirators for Civil Population.—Mr. GEOFFREY LLOYD announced on November 20th that, apart from issues for instructional purposes, it was not proposed that the respirators which are to be made for the civil population should be issued until the need for their use arose. The design of these respirators had been settled and mass production was about to begin. It was not yet possible to give the cost of the respirators, nor to estimate their life, though arrangements to facilitate long-period storage were being made.

Notes in Brief

The Joint Committee on River Pollution is considering what measures are desirable to secure a more effective administration of the Act of 1876.

Mr. Elliot has stated that he is not satisfied that the establishment of a civilian anti-gas training school in Scotland is justified in present circumstances.

Sir Kingsley Wood stated recently that the formulation of a policy to meet the peril of a declining population was under consideration.

The Board of Education inquiry into homework is nearly complete.

Medical News

It is announced this week that the Oxford University Conservative Committee will put forward the name of Sir Farquhar Buzzard, Bt., Regius Professor of Medicine, as the official conservative candidate at the coming by-election, when Lord Hugh Cecil resigns his seat in the House of Commons as representative of the University.

Sir Weldon Dalrymple-Champneys will deliver a Chadwick Public Lecture on "Modern Views on Infection and Disinfection" at 26, Portland Place, W., on Wednesday, December 9th, at 8.15 p.m.

The annual dinner of the Medico-Legal Society will be held at the Trocadero Restaurant, Piccadilly Circus, W., on Wednesday, December 9th, at 7 for 7.15 p.m.

The fifteenth annual dinner and dance of the British Serbian Units Branch of the British Legion will take place at the Lysbeth Hall, Soho Square, on Saturday, December 5th, at 7 for 7.30 p.m. Dr. Cooke-Taylor will preside. All friends of Yugoslavia are welcome. Tickets from the honorary secretary, Miss Marx, 24, Melcombe Court, Dorset Square, N.W.1.

The Glasgow University Club, London, will dine at the Café Royal, Regent Street, W., on Friday, December 4th, at 7.30 p.m., with Professor D. M. Blair in the chair. Any Glasgow University men who, though not members of the club, desire to attend are requested to communicate with the honorary secretaries, 62, Harley House, London, N.W.1.

The annual dinner of the London Jewish Hospital Medical Society will be held on Sunday, December 6th, at the Trocadero Restaurant, when the president, Mr. Arnold Sorsby, will be in the chair. Lord Snell will be the principal guest, and the Marquess of Reading will propose the toast in his honour. Medical practitioners who have not received any notice are requested to communicate with the honorary general secretary, Dr. Max Sorsby, London Jewish Hospital, Stepney Green, E.1.

A meeting of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W., on Tuesday, December 8th, at 5.30 p.m., when a discussion on "The Abatement of Overcrowding: The Results of the First Steps" will be opened by Mr. H. H. George, assistant secretary, Ministry of Health. The chair will be taken by Dr. John Macmillan.

At St. Bartholomew's Hospital on the afternoon of December 10th the Mozelle Sassoon high-voltage *x*-ray therapy department will be opened by Mrs. Meyer Sassoon, Lord Rutherford and Lord Horder will speak, and a memorial plaque to Dr. Ronald George Canti, late clinical pathologist to the hospital, will be unveiled by Dr. Malcolm Donaldson, director of the cancer department.

At the meeting of the Institution of Heating and Ventilating Engineers, to be held on Wednesday, December 2nd, at 7 p.m., at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W., a paper on "Humidity in Industry" will be given by Mr. M. C. Marsh, M.A., Ph.D. The meeting is open to non-members.

The president of the hospital, Mr. John A. Dewar, will lay the foundation stone of the new extensions to the Gordon Hospital, Vauxhall Bridge Road, S.W., to-day (Friday, November 27th) at 3.15 p.m. The formal opening of the new hospital will probably take place in April, 1937.

At the twenty-third Hygiene Congress, held at the Pasteur Institute in Paris between October 19th and 22nd, Professor Panisset communicated a report on the epidemiology of infectious diseases of animals and the organization of national and international services to deal with them. On the same occasion several reports were read on associated vaccinations (against diphtheria and the typhoid infections).

On November 19th, at the chapel of the Shropshire Orthopaedic Hospital, Oswestry, Mrs. Frederick Watson unveiled a tablet in memory of her father, Sir Robert Jones, surgeon to the hospital for thirty years.

At the recent International Congress of Rheumatism, held at Lund and Stockholm, it was decided that the next congress should be held in Oxford, Bath, and London in April, 1938.

The Commissioner for Special Areas has made a grant of £62,000 towards the cost of extensions at Sunderland Royal Infirmary. This represents 75 per cent. of the total cost of the scheme. During the past ten years £105,000 has been spent on new buildings. The latest extensions include a new block with 100 beds, out-patients' department, and nurses' hostel.

Professor L. Tanon of the Paris Faculty of Medicine devotes a study in the *Annales d'Hygiène* for October to the possibilities of poliomyelitis being transmitted to man from animals, notably fowls. He has given instructions to medical inspectors to bear this point in mind in connexion with their epidemiological studies.

The Town Council of Crieff has accepted a framed portrait of Dr. James Gairdner, with an inscription recording that he was appointed medical officer to the burgh on January 27th, 1880, and has been associated with at least ten provosts and all the five town clerks.

The Bengal Medical College at Calcutta has recently celebrated its centenary. It started with fifty students and now has 754.

Professor P. P. Debono, M.D., F.R.C.S., has been appointed a nominated member of the Executive Council of Malta.

A National Medical Council on Birth Control has been formed in the United States to control and supervise medical policies of the American Birth Control League, and to initiate, encourage, and carry out appropriate scientific research in the medical aspects of contraception.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin).

QUERIES AND ANSWERS

Case for Diagnosis and Treatment

Dr. H. L. SELWYN writes: I would be glad of the assistance of any of your readers in the treatment of an otherwise healthy young professional man. A few hours before any important social engagement he has anorexia, and very soon after he has taken however little food he has nausea and vomits, after which he feels better. He had similar attacks just before examinations. Usually he can take no food for the rest of the day. He has no worries and lives a quiet life. He has had bromides, but with little result.

"Windscreen Headache"

Dr. R. CONDON (Birmingham) writes: I have had continuous headache and eyestrain for the last two weeks due to the sloping windscreen of a modern motor car. Does any reader know of a solution to this problem, perhaps a visor or some other device?

Frequency of Micturition after Radium

"B." would like to know the best treatment for a constant desire to micturate after radium treatment for endocervical carcinoma. The desire occurs every two or three hours during the night, when each time only a few ounces of urine are passed, and not so often during the day. This has now been going on for a couple of months.

Income Tax

Subscriptions to Medical Societies

"W. W." is in practice as a consultant, and has usually claimed a deduction of about £20 per annum "under the head of advertising" for subscriptions to medical societies and journals and expenses of attending meetings, reading papers, etc. The inspector of taxes objects on the ground that such expenses are not "necessarily" incurred.

*** If, as we gather, "W. W." is assessed for consulting work under Schedule D there is no doubt on the point—the test of necessity is inapplicable and the expenses are allowable. If he is assessed under Schedule E for the emoluments of an appointment then it is essential that they should be "necessarily" incurred, and they are usually not strictly allowable unless it is a condition of the employment that he shall be a member of the societies in question and do such work as reading papers, etc., at the meetings.

Supplementary Appointment

"M.B., D.P.H." has held the post of school medical officer, the salary being paid by the education committee. As from January 1st, 1935, he was appointed additionally as senior assistant M.O.H. for child welfare—dealing as such with pre-school children—the salary of £100 being paid by the health committee of the same council. Tax is claimed as

from that date on the basis that there are two appointments and not merely an increased salary for additional service to the same council.

*** The matter is not entirely free from doubt, but we fear that the fundamental differences—in clientele and in the source of the emoluments—are sufficient to justify the Revenue regarding the £100 per annum as arising from a different appointment.

LETTERS, NOTES, ETC.

Sir Thomas Bodley at St. Bartholomew's

In "Sir Thomas Bodley's London House," reprinted from the *Bodleian Quarterly Record*, Sir D'Arcy Power throws further light on the story of this Elizabethan diplomatist and scholar, the founder of the Bodleian Library at Oxford, and contributes some interesting data to the history of St. Bartholomew's Hospital. It had long been known that Sir Thomas and Lady Bodley lived in the "Great House" within the precincts of the hospital from 1599 to 1612, paying an annual rent of £5 6s. 8d., and that Lady Bodley was buried "in the upper chancel without knells, 18s. 4d.," in the Church of St. Bartholomew-the-Less. From the examination of a plan of the hospital property, which can be dated between 1604 and 1613, Sir D'Arcy has been able to establish the exact position of the house and to reconstruct its character. The site of the house is now occupied by the newer portion of the Queen Mary's Institute for Nurses. The building, which stood at right angles to Little Britain, was of three stories. In front was a court-yard with stable and offices, and to the east a small garden divided into two parts. The house overlooked the burial ground for the parishioners of St. Bartholomew-the-Less, a part of which Sir Thomas Bodley had been allowed to buy. Although Sir Thomas lived for part of his later life in Fulham, in his old age he returned to the "Great House," where he could be well nursed by the hospital sisters and be well treated by "little Doctor Harvey," the discoverer of the circulation of the blood and physician to the hospital. Bodley was a consistent member of the Church of Rome, and compounded with His Majesty James I for a certain yearly sum not to come to church. His two sons, John, who died at the age of 96, and Thomas, were both doctors of medicine and Fellows of the Royal College of Physicians.

Home Training of Mental Defectives

The Central Council for Mental Welfare (24, Buckingham Palace Road, S.W.1), which has done so much for the feeble-minded by caring for them in special schools and occupation centres and in other ways, has now issued a small pamphlet making suggestions for the home training of those who can never be dealt with in these ways, but who have to be kept at home and provided for there. The title of the pamphlet is "Children Who Can Never Go to School." It is issued at the price of threepence, and is full of wisdom. The advice is set out in ten clear paragraphs, and is of the most practical character. The source from which it comes ensures its being skilful, sensible, and understanding. The pamphlet is offered to the parents of such a child in the hope that it will bring encouragement and help. It certainly ought to bring both abundantly to any parent or private attendant who has a mentally defective child in charge, and it should be of great use to the medical practitioner responsible for such a case. The enormous difficulties of the situation are fully faced, and the need for faith, hopefulness, and pity, for unfaltering courage and unremitting patience, is not only recognized but emphasized. These are rare gifts, and the results, even with them, may be so far from brilliant that there are members of the public, members even of the medical profession, who state or imply that the effort is not worth while. It is well that this pessimistic, almost inhuman, creed should be met by the conviction, based on experience, stated in the concluding words of this admirable pamphlet: "that a personality imprisoned behind the bolts and bars of an imperfectly functioning physical brain can be relieved from the deepest of its darkness to lay hold, however feeble its grip may be, on something of the joy and beauty of life."

Thermal Treatment of Common Urinary Infections

Mr. MORTON WHITBY (London, W.1) writes: The commonest organisms to infect the urinary tract are the gonococcus, *B. coli*, and *Staphylococcus albus*. Less common are tubercle bacillus, streptococcus, pneumococcus, and typhoid bacillus. The former generally attack the urinary tract by direct spread, whereas the latter are usually haematogenous in origin. That many of these organisms are the precursors of urinary calculi there can be no doubt. In the July number of the *British Journal of Venereology* Dr. W. M. Simpson describes the effects upon the gonococcus by artificial fever treatment. He states that 99 per cent. are killed in two hours and the remaining 1 per cent. in four to five hours, but the method is fraught with certain dangers, as the patient may die. It seems unwarranted to subject a patient to such possible results while other methods are at hand whereby a cure can be effected without pain or danger. I refer to ultra-short-wave therapy. My letter published in your columns on July 4th of this year illustrated the excellent results obtained in the case of the gonococcus. Recently I have had experience with seven cases of *B. coli* and three cases of staphylococcus infections of the urinary tract, and had equally good results. I tried Turkish bath treatment, without very satisfactory results. Ultra-short-wave therapy cannot be relied upon alone. It must be combined with other methods of treatment—for example, diet, medicinal, autogenous vaccine, colon lavage, and, in some cases, renal and bladder lavage, seminal and vesicular and prostatic instillations. Every case must be adequately investigated clinically, bacteriologically, radiologically, and sometimes urethroscopically and cystoscopically before a prognosis can be expressed. The lethal dosage necessary from ultra-short-wave therapy for the destruction of common organisms is between 103° and 105° F. The rectal temperature will rise to this degree after treatment of the bladder or genital area.

The Pomaret Scheme

"SIXTY FOUR" writes: In a note "Whither Medicine?" your Paris correspondent, in the *Journal* of October 31st, refers to the Pomaret scheme, which says "in effect that it is just as reasonable to make an old doctor give place to a younger and possibly better man as it is to withdraw postmen, admirals, and policemen from the active lists." There is no similarity, however. Men entering the said services understand that they must retire at a certain age, but on a pension. There is no such provision for medical men in general or consultant practice. A great many would be reduced to beggary if they were deprived of their means of earning a living.

Medical Register: Office Edition

The Registrar of the General Medical Council informs us that orders for the office edition of the *Medical Register*, 1937, published by the Council at the special price of 10s. a copy, post free, must be received, with a remittance, at the office of the Council not later than December 31st, 1936. The office edition differs from the ordinary edition of the *Register* to the extent that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on more inexpensive paper and bound in boards. It includes, however, the same entries relating to registered medical practitioners as are included in the ordinary edition, and is therefore equally serviceable to public authorities and others who find it necessary to ascertain whether particular persons are registered medical practitioners or not. The Council also prepares monthly lists of names added to, and removed from, the *Register*, and particulars of the terms and conditions upon which copies of these lists may be made available can be obtained on application to the office of the Council, 44, Hallam Street, Portland Place, W.1.

Air Raid Precautions Reserve

The British Red Cross Society, at the request of the Home Office, is enrolling an Air Raid Precautions Reserve of men and women qualified by the possession of the society's certificate in first aid in chemical warfare to serve in connexion with air raid precautions duties with a detachment of the society. Further particulars are available at the office of the society, 14, Grosvenor Crescent, London, S.W.1.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 57, 58, 59, 60, 61, 64, and 65 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 62 and 63.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 295.